Telephony

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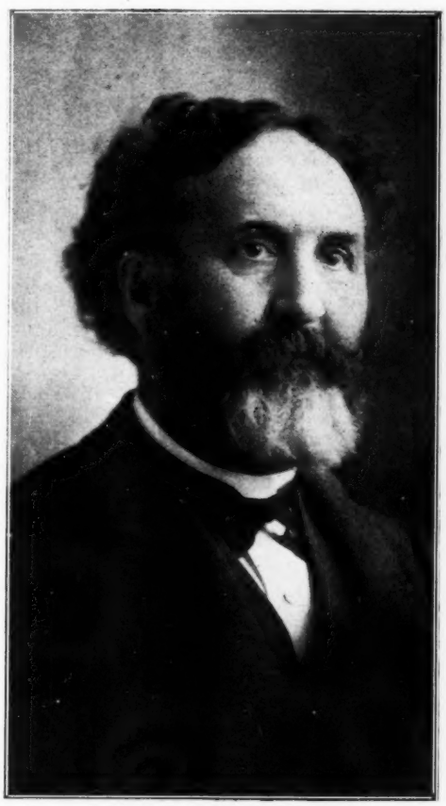
THE STORY OF MICHIGAN

The Fourth of a Series of Articles Dealing with the Telephone Development of the States

By J. B. Ware

MICHIGAN has played an important part in the history of the Independent telephone movement, and the annals of the contest with the Bell monopoly would be incomplete without a comprehensive chapter on the influence the Wolverine state has wielded in that crusade. From the time the telephone was first exhibited at the Centennial Exposition at Philadelphia in 1876 to the present day, Michigan has been identified with all of the interesting incidents of telephone development.

Probably the first pair of telephone instruments taken out of the East were those presented by Prof. Alexander Graham Bell, the father of the telephone, to his friend, Mr. J. W. Converse, who brought them to Grand Rapids, where they are still preserved by the company formerly using them. They bear the following inscription:



E. B. Fisher.

The first telephones brought into Michigan. Presented by Professor Bell to J. W. Converse, Boston. By him taken to Grand Rapids and used between the office and the mills of the Grand Rapids Plaster Company in the fall of 1876.

These instruments are identical in shape to the present Bell telephone receiver, being but a trifle larger, and are made of wood. They were placed upon a single iron wire circuit about three miles long, and attracted wide attention by reason of enabling the successful holding of conversation between individuals a furlong apart.

Mr. W. A. Jackson, manager of the American District Telegraph Company, Detroit (A. D. T. Co.), conceived the advantage of putting the newly discovered telephone in place of their call boxes in certain of their subscribers' offices, for messenger service. Late in 1877 this A. D. T. Company received its first telephones. It experimented with them with the result that on August 15th, 1878, an exchange of twenty telephones was opened in Detroit, being the original exchange in the state, and possibly in the entire west. These twenty instruments were on two iron ground circuits, having a total of about six miles of wire, and each circuit having an operator. One line ran up Jefferson avenue and the other up Woodward avenue. To Michigan readers it will be of interest to know that Mr. James Land, present general manager of the Michigan Bell, was a messenger boy with the A. D. T. Co. when the first telephones were received, and has been in the telephone business ever since.

J. B. Ware.

At the time the parent Bell company was selling territory and exclusive rights for telephone purposes, Mr. G. W. Balch, Detroit, purchased the rights for Michigan, paying therefor, it is understood, the sum of five thousand dollars. Soon thereafter the Telephone and Telegraph Construction Company was organized by Mr. Balch, Mr. James McMillan and Mr. John C. Newberry, to take over the tele-

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phone branch of the A. D. T. Co.'s business and to develop it throughout the state.

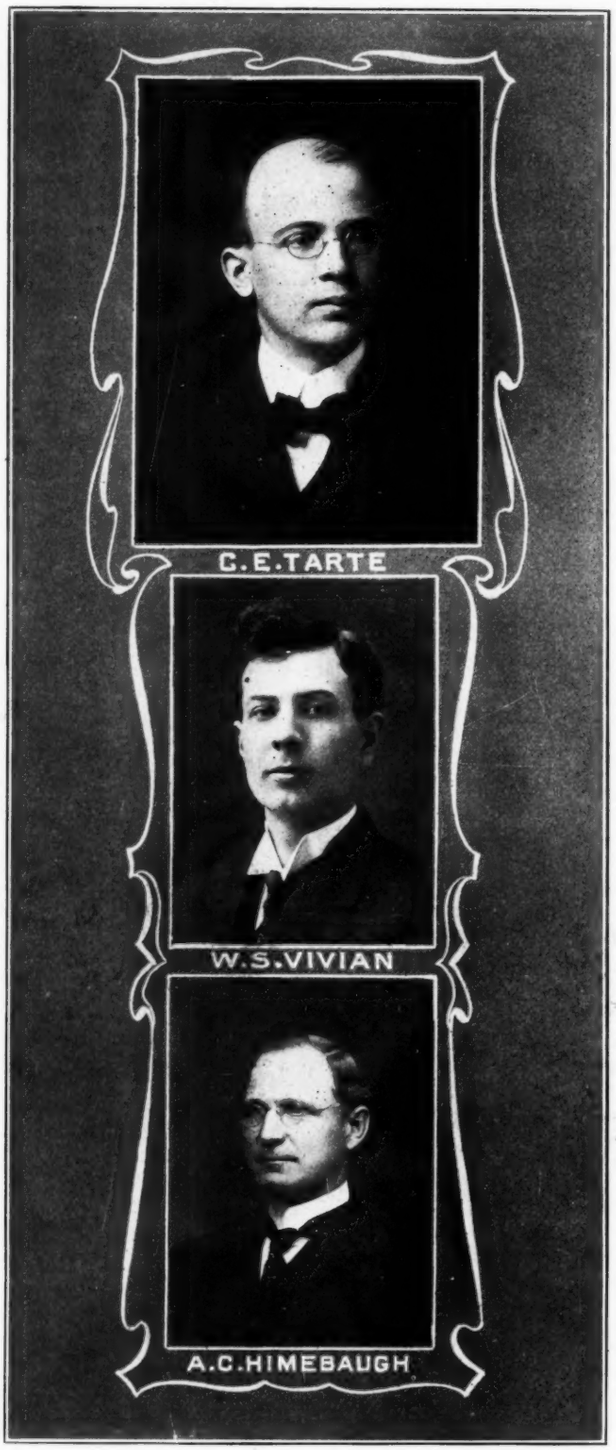
The first exchange built by the new company was at Grand Rapids, which began service October 1, 1878, with twenty-five telephones and ten miles of wire for circuits. In 1888 this exchange had grown to 1,100 telephones, at which time Grand Rapids had 59,000 population. The claim was proudly made by the Michigan Bell officials that, population considered, said city had the largest telephone development of any in the United States, being approximately one telephone to each fifty-four inhabitants! The first Bell toll line in the state was between Detroit and Mt. Clemens. Its first circuit across the state connecting Deroit and Grand Rapids was an iron ground line completed about 1891. It is of historical interest to interpolate that the first long distance Bell circuit connecting Chicago with St. Louis, Mo., was completed in August, 1896, only 10 years. It was built for the purpose of handling business of the Republican National Convention that year, which nominated the Hon. Wm. McKinley for President.

It is a strange coincidence that President McKinley died in the home of John G. Milburn, Buffalo, N. Y., and that this gentleman is to-day a resident of New York City, the attorney for the Bell Telephone Company in that metropolis.

The Michigan Bell Telephone Company was organized January 10, 1881, with $250,000 capital, by Messrs. James McMillan (later U. S. Senator), George W. Balch, John S. Newberry (father of present Assistant Secretary of the Navy), Henry B. Ledyard (many years head of the Michigan Central railroad), W. A. Jackson and Hugh McMillan. This corporation succeeded the Telephone & Telegraph Construction Company.

It is understood the original investment of $25,000 was all the cash capital actually paid into the business. So anxious were persons and firms in different parts of the state to obtain the use of a telephone, that large donations were made and much script was sold, which, with the large profits realized, enabled the company rapidly to increase its property and become a great financial institution.

In the spring of 1883 a state telephone law was passed by the legislature. The Michigan Telephone Company, with an authorized capital of $2,500,000, was promptly incorporated by Mr. McMillan, Mr. Newberry and others. This Bell company absorbed the property and business of the Michigan Bell Telephone Company, and Mr. W. A. Jackson became the general manager, as he had been in each of the preceding companies.



Prominent Michigan Independent Telephone Men.

These several Michigan corporations were licensees of the parent Bell Telephone Company of Boston. They operated under the famous perpetual contract, which was based upon the control by the Bell company of all important telephone patents, and the belief that before their expiration that organization and its licensees would be able to prevent or defy competition.

Among the provisions of said perpetual contract were:

That all apparatus must be purchased from manufacturing companies controlled by the Bell—the Western Electric Company being the successor of several such, and a large majority of its stock being owned by the parent Bell Company.

That only Bell instruments shall be used, and a royalty of fourteen dollars per year be paid on each telephone.

That no connection shall be made with other than Bell telephones and apparatus.

That question of validity of patents shall never be raised.

That violation of any of the provisions of the contract authorizes the Bell Company to take possession of the property, etc., etc.

It is believed that all licensee companies of the Bell operate under this form of contract, which was in force in Michigan until the failure of the Michigan Telephone Company in 1903. As a final and perfect safeguard to Bell interests, as a rule the parent company secured and yet retains a control of the stock of each of its licensees, with two or three exceptions. thus not only preventing litigation, or undue friction, but enabling the policy of each licensee to be absolutely determined and fixed at Boston, without question and without modification.

During recent years as competition has rapidly increased and threatened the overthrow of the Bell interests, and in order to, if possible, enable the licensee companies to compete therewith, the parent Bell has from time to time voluntarily reduced the royalty exacted from its licensees, until at present it is about five per cent of the gross income of each such subordinate company, with a minimum of one dollar and a half per telephone. However, the licensees' contract remains as originally drawn, it having evidently been the hope of the American Bell officials that there might come a time when conditions would be such as would enable licensee companies to again be

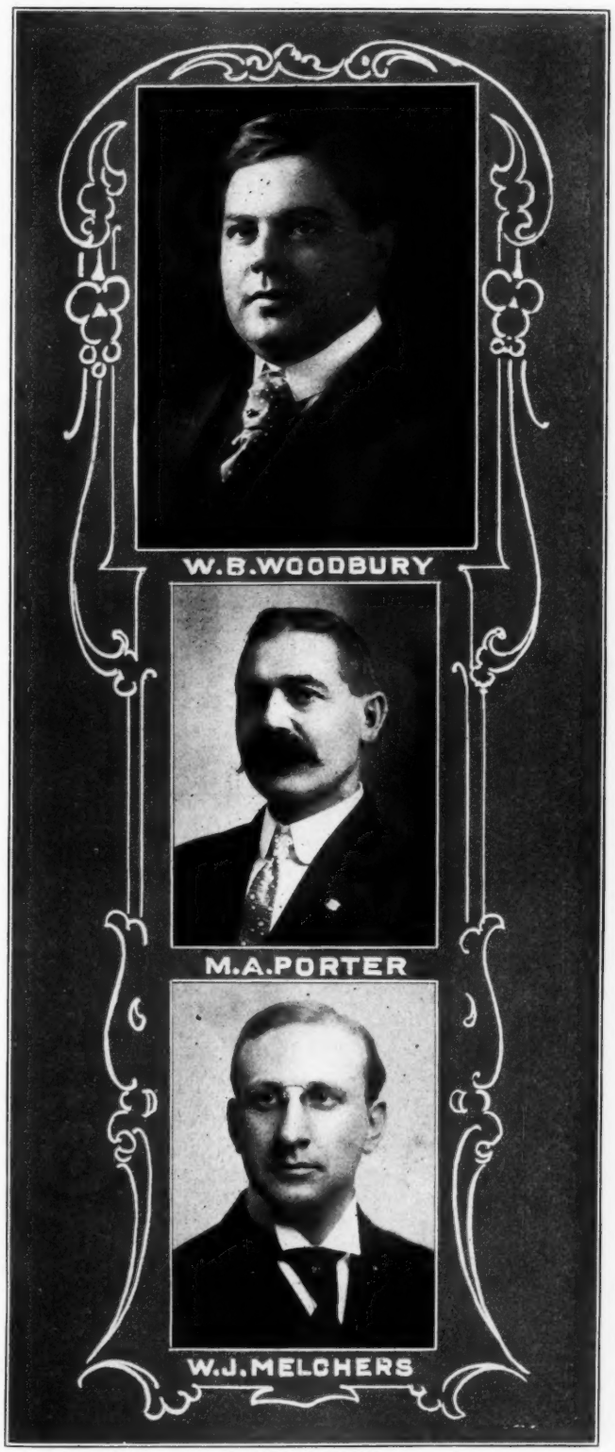
taxed a royalty equal to the limit provided in *the original contract, which is yet in force.*

Previous to competition (1895), by reason of that fact and the heavy royalty mentioned, service rates were not only very high, but the Bell companies being without incentive to improve service, as a rule that furnished was in every way unsatisfactory, and the cause of great complaint on the part of the public.

Excepting in Detroit, where the rates were excessively high, in the cities, towns, and villages throughout the state having Bell telephone service previous to 1895, the lowest business subscriber's rate was $50 within half mile of the exchange, with an increase based on $36 per mile beyond said limit; residence telephones were $40, likewise with higher rates for increased distance from the exchange. The rates named were for both ground lines and common return service. A metallic circuit business telephone was based upon $80 with the increase outside the limit as named.

In Detroit, with less than 3,500 telephones in use, the business rate for a Blake instrument was $80 per year, and for a long distance or metallic circuit was $120, within the first limit; and likewise increased outside of the circle indicated, so that there were a number of factories paying as high as $240 per year within the corporate limits of Detroit. The residence telephones cost $60 for Blake service, and $72 for the metallic service, with an increase for distance.

As a consequence of the rates above named, and the poor quality of service furnished, as well as because of the arbitrary and unfriendly attitude on the part of Bell officials to their subscribers and the public, the number of Bell telephones in service in the entire state was about 13,000 in 1895, and as late as January 1, 1898, the number had reached but 16,270. It is interesting to note just here, that after more than seventeen years without competition, the Bell companies throughout the United States had on January 1, 1895, only 243,432 telephones in service; and on January 1, 1896, but 281,695.



Prominent Michigan Independent Telephone Men.

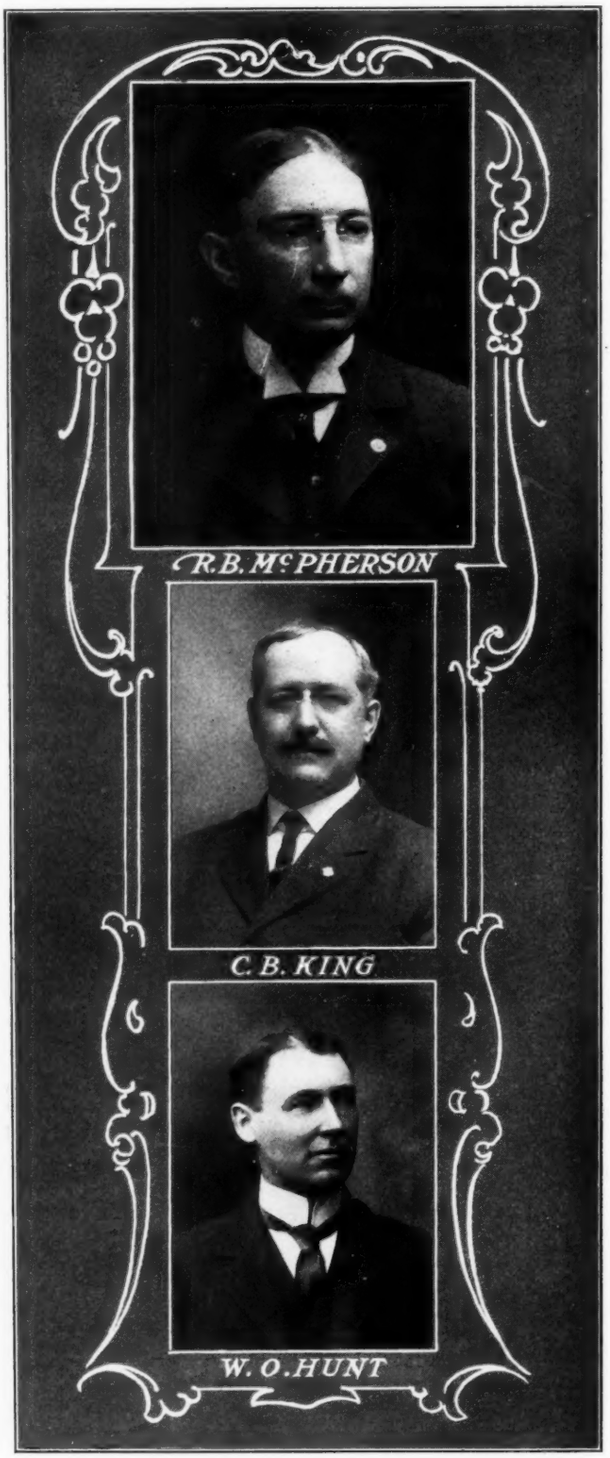
Reference has been made to the exclusive control of the telephone field for so many years by the Bell company by reason of its telephone patents. Its harsh and unreasonable methods in enforcing its rights, especially just previous to the expiration of its broadest patent, in 1893, caused additional bitterness toward the Bell. This was aggravated and increased by its determined effort to prevent competition after said patent had expired, by claiming its exclusive rights had been extended another seventeen year period under the Berliner patent. Suits were brought and injunctions sought against opposition companies, and its licensees were permitted to continue the old policy of neglect and extortion.

Up to 1895, and even for five years thereafter, it had been the rule with the Bell companies to refuse to furnish telephone service in the villages and smaller towns, and in many through which their toll lines ran they had failed to establish toll offices. Previous to this time (1895) the Bell had likewise refused to furnish farmers with telephone service at any price. For several years in a few cases only was farm service furnished, and under rates of $100 or more per telephone, and usually with conditions that were particularly burdensome. Thus, throughout the state and nation, the citizens everywhere, except possibly in some of the cities and larger towns, were banded together in sentiment against the Bell companies, by reason of inability to obtain the full advantages of the telephone. It was but natural that with the expiration of the patents that previously had prevented competition, in many places throughout the nation individuals and small companies should undertake to provide for themselves a limited telephone service.

The success, which to a considerable degree was thus early obtained, soon led stronger companies to enter the field, until by 1895 the great Independent telephone movement had been born. Rapidly its development has increased until at the present time it has surpassed the Bell in the number of telephones actually in service by approximately half a million; has revolutionized the business until the quality of service, both exchange and long distance, exceeds in its perfection the highest ideals of ten years ago; service rates have been reduced to a point that in most instances is reasonable, being based upon the cost; not only cities and towns have a largely increased number of telephone users, but almost every village, hamlet and rural community has like benefits. These results have been obtained through the effort of the people in their own behalf and have been brought about without a single disadvantage in connection therewith, other than the temporary annoyance of two tele-

phones on the part of a small percentage of telephone users—the expense of the dual service to such users being as a rule no greater than was formerly charged for Bell service.

The effect of competition caused the Bell to reduce rates in many instances even below cost, in order if possible, to drive out competition. After three or four years of struggle it became a foregone conclusion that the opposition could not be driven out; that patents would no longer protect a telephone monopoly; that competition among Independent manufacturers was making rapid strides in the improving of telephone apparatus and instruments, even threatening to entirely eclipse the similar product used by the Bell. Then the general policy of the Bell companies was modified. All along the line an effort was made to improve service and increase the number of telephones in use, apparently with the hope not only of retarding competition, but also the belief that with an improved quality of service the high rates prevailing *could be increased where competition did* NOT *exist.* Thus has great benefit come to telephone users, both Bell and Independent, in the greatly improved service furnished by both, and for this desirable result the credit is due almost wholly to the Independent movement, as stated.



Prominent Michigan Independent Telephone Men.

Much in a general way has been published as to this movement in different states and localities. The writer aims to deal with the Independent movement in Michigan in such manner as will not only give a fair and proper understanding of what has been accomplished, but also furnish interesting and important events and data not heretofore published. The prime object, however, is to enable those not as yet familiar with the details and merits of the telephone struggle now taking place, to clearly see that the Bell companies of to-day are those of yesterday, and represent the monopoly element or factor working against the people's best interest; that the Independent companies are of and for the people and have demonstrated both the ability and the willingness to furnish at reasonable rates the best telephone service to be found either in the United States or abroad, and under proper municipal restrictions.

The fundamental patent of the Bell company expired in 1893, as before stated. It is very probable that a number of private non-Bell telephone lines were constructed in that year. Present records as to the pioneer Independent telephone exchanges in Michigan establishes the first as built in 1894.

Thus, a small exchange began to furnish service in Ontonagon in October, 1894; an other at Niles in November of the same year. It is believed a small exchange built by Mr. G. W. Finch, began to furnish service in Escanaba a few months previous to these dates, thus apparently securing to the Upper Peninsula the record of the first Independent battery telephone exchange established in Michigan. Also in this section were located the two Independent companies first to incorporate in the state, being the Marquette County Telephone Company, Ishpeming, on March 26, 1895, and the Menominee Range Telephone Company, Iron Mountain, on April 22, 1895. With these brief statements as to the Upper Peninsula that section will be dismissed from further consideration in this article, by adding this only, that owing to the rough and broken condition of that upper portion of the state, and to the Independent companies being widely separated, no toll line system was developed between them. This resulted to the advantage of the Bell, and some three years ago it completed a line across the Upper Peninsula to the Straits, thus affording connection with its Lower Michigan system.

The Michigan Harrison Telephone Construction Company was formed in 1894, through the efforts of Mr. R. E. Brett, and a small exchange was completed by said interest in Port Huron in March, 1895. At Cadillac Mr. W. H. Sill started an exchange late in 1894 or early in 1895.

At Ithaca in 1893-4 the Bell company had from twelve to sixteen telephones at $40 or $50 each, there being a difference of memory on the part of former subscribers. The toll charge was 25 cents to St. Louis, eight miles distant, and the same to Alma, nine miles away, in each of which towns was an exchange like in size to Ithaca. (The lowest Bell toll rate in the state before competition was 25 cents.) Several business men in Ithaca became interested in the Acoustic telephone and led by Mr. James P. Gibbs, decided to endeavor to furnish themselves local telephone service. In 1894 ten citizens each contributed $10 to construct a plant. After a few months they re-

placed the Acoustic instruments with battery telephones made by the Gilliland Company in Adrian, and sold in April, 1895, to the Ithaca gentlemen by Mr. W. O. Hunt (afterwards the father of the Adrian Telephone Company, which under his supervision has made such a pronounced success to himself and associates). The Gratiot company gradually developed the county until, with perhaps 300 telephones it was absorbed by the Union Telephone Company of Alma.

In 1895, besides the events and results in Grand Rapids and Detroit, to which special reference will later be made, pioneer exchanges were built in the following towns and villages: Homer, by B. F. Woodbury; Allegan, by M. D. Owen; Saugatuck, Ganges and Fennville, by a mutual organization of over sixty fruit farmers, with H. H. Hutchins as main organizer and general manager; Holland, South Haven and Cassopolis, also had small local exchanges that year.

The following is a nearly complete list of Independent companies formed or plants built, between the years 1895 and 1900, being arranged in the order of date of incorporation, where so organized, and with the name of the "active" official:

1896.

Evart—E. E. Bell, proprietor; sold to Citizens' Telephone Company, 1905.

Macon—Union Telegraph Company, R. B. Mills, manager.

Sparta—Sparta Telephone Company; sold to Citizens' Telephone Company, 1905.

Munising—Munising Telephone Company, C. R. Langley, manager.

Muskegon—Citizens' Telephone Company, of Muskegon, Hugh Parks, organizer; Wm. Robinson, manager.

Alpena—Alpena Mutual Telephone Company, F. S. Dewey.

Muskegon — Crosby Telephone Company; sold to Citizens' Telephone Company of Muskegon.

Lansing — Lansing Telephone Company, Frank B. Johnson, manager; sold to Citizens' Company, 1900.

1897.

Saginaw — Valley Telephone Company, James E. Davidson, president; R. F. Johnson, general manager.

St. Johns—Crowley Telephone Company, later the National Telephone Company; J. H. Tildew, general manager; absorbed by Union Telephone Company, 1899.

Edmore—Montcalm County Telephone Company; merged with Union Telephone Company, 1899.

Ubly—Ubly Telephone Company, owners, A. E. Sleeper and F. H. Brown.

Northville—Northville Telephone Company, M. A. Porter, organizer and manager.

Greenville—Greenville Telephone Company, Dr. Black, owner; sold to Citizens' Company, 1904.

1898.

Battle Creek—Calhoun County Telephone Company, A. J. Little, promoter; Citizens' Company, 1904.

Kalkaska—Swaverly Telephone Company, Chas. W. Swaverly, builder and manager.

Morenci—Morenci Telephone Company, Albert Deyo, president.

Reed City—C. F. Marshall's Telephone Exchange; sold to Citizens' Company, 1906.

Blissfield—Blissfield Telephone Company, John Rentz, organizer, chief owner, manager.

1899.

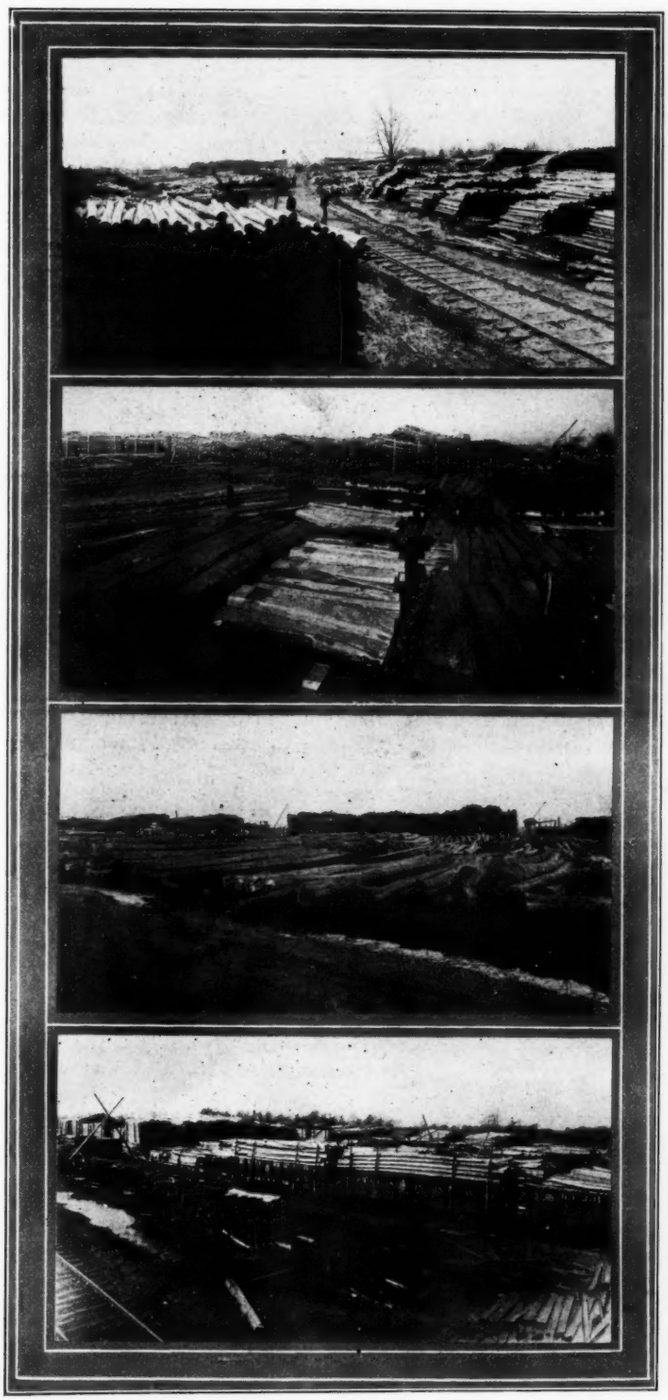
Alma—Union Telephone Company, C. O. Trask, organizer; W. J. Melchors, now general manager.

Concord — Concord Telephone Company, all party line exchange during early years.

Hart—Oceana County Telephone Company, Dr. G. S. Root, manager; name changed to Lake Shore Telephone Company; Thos. Bromley, Jr., St. Johns, general manager.

Benzonia—Benzie County Telephone Company, W. A. Young, organizer and general manager.

Saranac—Saranac Improvement Company; sold to Citizens' Company 1906.



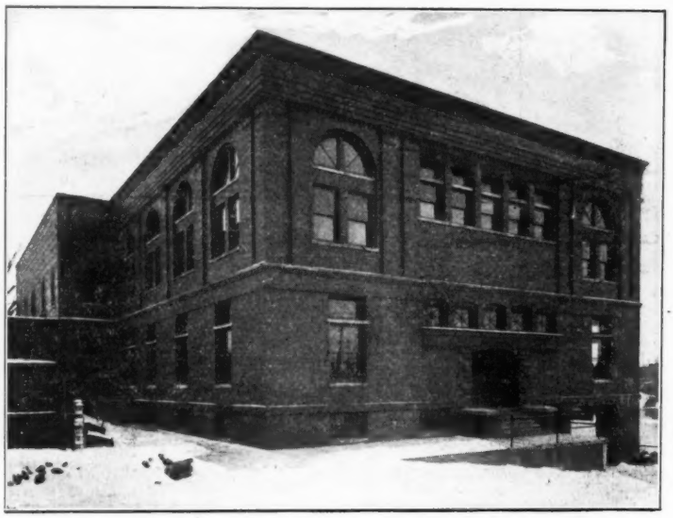
Cedar Yards of W. C. Sterling & Son at Monroe and Bay City.

In Detroit a telephone franchise was applied for December 4, 1894, with business rates at $50, professional at $40, and residence at $30 per telephone, there having been previously secured three thousand subscribers' contracts at these rates. After many delays on the part of the Common Council the rates were reduced to $40 for business and $25 for residence telephones, the franchise was then granted by the city council on July 30, 1895, and refused by the Harrison company making the application. Later Charles Flowers and William L. Holmes, who had been connected with the Harrison company, with others applied for a franchise for the Detroit Telephone Company and at the same rates which had previously been refused by the said Harrison company ($40 for business and $25 for residence). On March 14, 1896, the franchise was granted to said company, and it was duly incorporated under the state law July 23, 1896.

These same gentlemen organized a construction company, also the Detroit Switchboard & Supply Company, to manufacture telephone apparatus and handle supplies. A little later, on February 10, 1897, they likewise incorporated the New State Telephone Company, with main office in Detroit, for the purpose of owning and operating exchanges and lines in the state outside of said city.

Thus, within a period of about six months, were four

companies organized, each having practically the same board of directors, which showed comprehensive and well formed plans for the future policy of these interests. Being early in the field, with a splendid start in manufacturing, constructing and operating these branches of the telephone business, apparently the finest opportunity was offered to build up large and successful enterprises. The writer cannot recall another Independent interest which at that time had as great financial strength and as high a standing and influence as these. Yet, as will appear from a review of their acts, one is led to suspect that possibly these companies were organized, not upon sound business principles, and proper motives, but, contrary to the established principles, so common to Independent companies, they were organized for personal gain, by sale to the Bell, thus involving the betrayal of the Independents.



Building of the Citizens' Telephone Company, Grand Rapids.

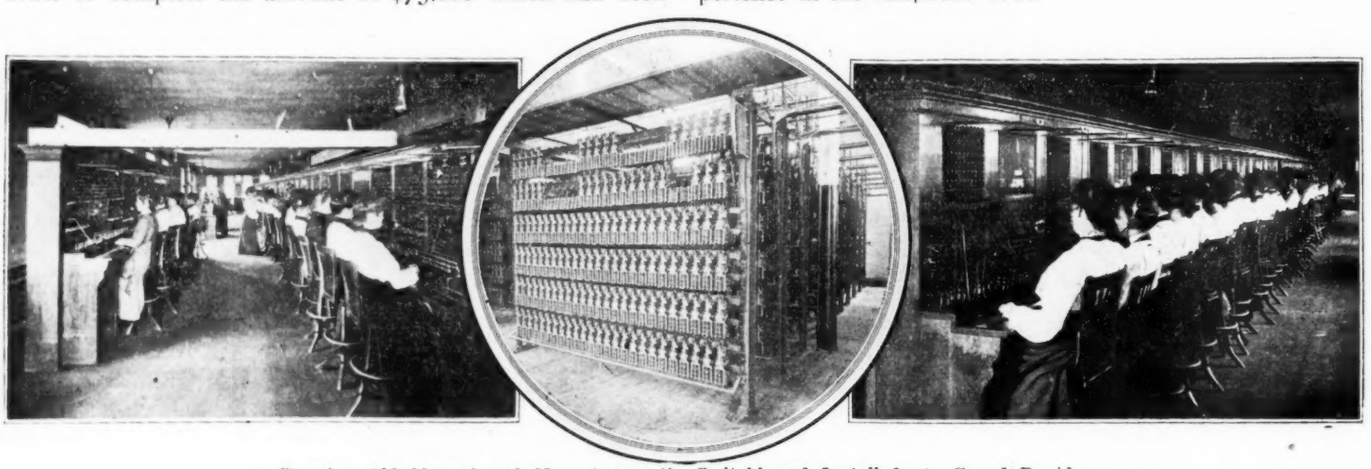
On September 10, 1894, during the administration of Mayor E. B. Fisher, an application for a telephone franchise was made in Grand Rapids, of which Mr. Charles R. Sligh was the prime mover. This was probably the first telephone franchise asked for in the state. Great care was taken by the city to properly safeguard its interests. The franchise was granted on January 7, 1895, the maximum service rates being fixed at $36 for business, and $24 per year for residence telephones. There followed a canvass for subscribers at $30 for business and $20 for residences. By early summer some 1,200 service contracts had been signed and $40,000 subscribed to a fund for the construction of an exchange. On June 6, 1895, arrangements were made with ex-Mayor E. B. Fisher and the writer to endeavor to secure $30,000 additional stock subscriptions in order to complete the amount of $75,000 which had been estimated as necessary to build a telephone exchange in the city (1895—75,000 population). In sixty days was accomplished the task assigned and the total number of subscribers to the stock of the proposed company was 268. The large number of stockholders this company has had (now exceeding 2,200) has ever proven a source of great strength and advantage to it.

On September 13, 1895, the Citizens' Telephone Company was incorporated, having an authorized capital of $100,000. The actual work of construction was commenced on October 9, 1895. Although incomplete, the exchange was opened for service on July 1, 1896, with about 1,000 telephones, which number was increased during the following six months to 1,776, on January 1, 1897. This exchange was the first in the United States to have 600 telephones in service, and passed the 2,000 mark before any other had reached the former number. In fact, as far as known to the writer, but two exchanges had reached 500 telephones previous to the beginning of service on the part of the Citizens' company, one of these being at La Crosse, Wisconsin, which had that number of telephones on January 1, 1896, the other was at Little Rock, Arkansas, which began service about March 1 and on April 1, 1896 had 534 telephones.

Mr. E. B. Fisher at the organization of the Citizens' company was elected the first president and served for two years. In 1901 he was elected secretary of the company, which position he has filled ever since with great advantage to the company and a great credit to himself.

The writer of this article was made the business manager of the Citizens' company at its organization, becoming also its secretary two years later, which positions he held until 1901, when he resigned to take charge of the developing of the Independent interests in Detroit and vicinity.

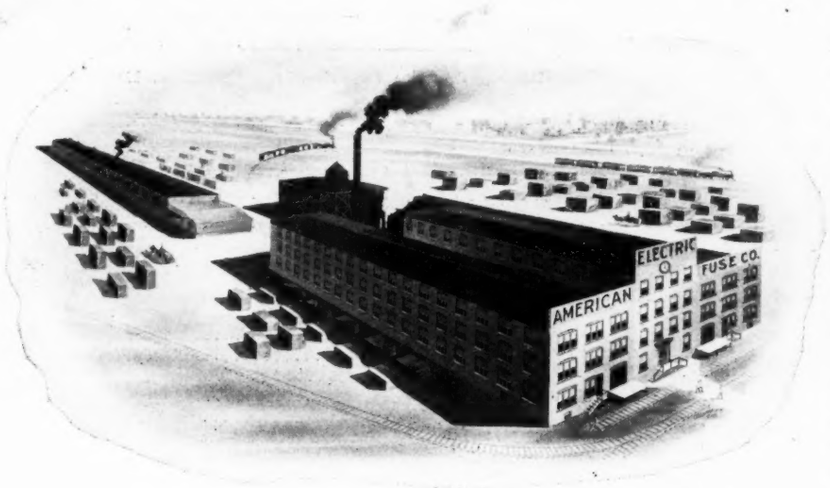
It is a somewhat remarkable fact, as has been true in a large number of other telephone companies, that among the officers and directors of the Citizens' company, during its earlier years, there was not one having had previous experience in the telephone field.



Showing Old Manuel and New Automatic Switchboard Installed at Grand Rapids.

Naturally the new company followed closely in the footsteps of the Bell in its construction. An endeavor was made to place all wires above those then in the city, resulting in the use of many long poles. The construction was entirely aerial and practically no cable was used at the start. The circuits were common return, and iron wire was used throughout the city, excepting in the case of two carloads of steel wire which were purchased before the

manager understood the difference in quality. That wire is still in service, after more than ten years' use. The price of wire was then about one-half what it is to-day, and the same was true as to the cedar poles. Those who are purchasing at the present time will be interested in the prices which were paid for the highest grade of cedar delivered in Grand Rapids during the year 1896-7. Thus, 25-foot, 6-inch top, poles cost 65 cents, and correspondingly low prices for other lengths and sizes up to the 60-foot, 7-inch tops, which cost $8 each; the 65-foot, 7-inch top, which cost $9, and several 70-foot, 7 and 8-inch tops, which were delivered at $10 each. Labor in those days was much less expensive than at present. Linemen's wages ranged from $2 to $2.25 per day for ten hours' work. These prices go far to show how it has been possible for the Grand Rapids exchange to furnish service at the very low rates charged.

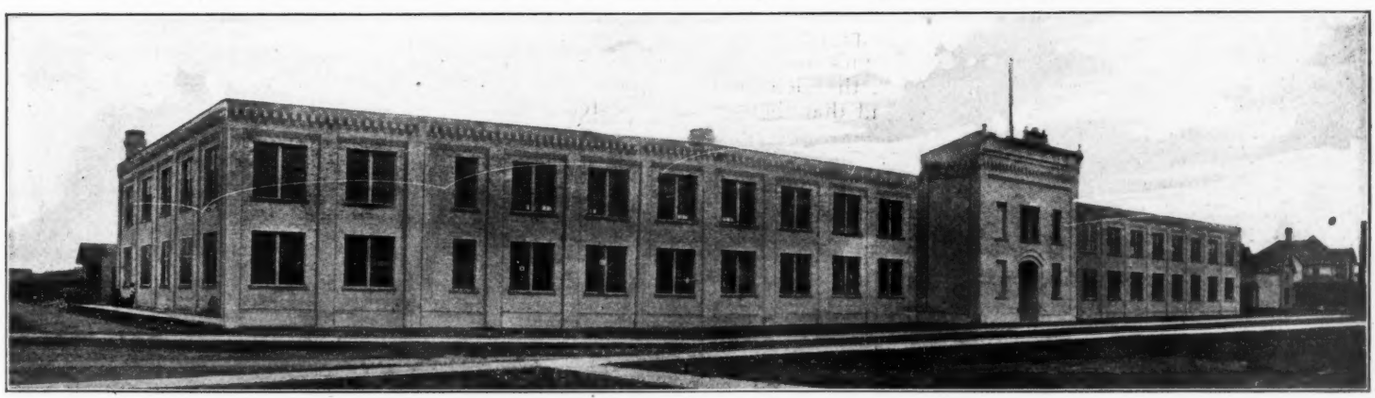


Factory of the American Electric Fuse Company, Muskegon.

In connection with the outside construction of the plant, no great difficulty arose until one of the main leads with eight cross-arms thereon had been completed within about four or five squares of the exchange. It occupied the west side of the street, on the east side of which the Bell had a heavy line of poles and wires. In order to delay the construction of the Citizens' company, employes of the Bell under orders changed the location of the subscribers' drops in the street being occupied by the Citizens' lead, so that the wires crossed it at various angles and elevations. Superintendent of Construction John C. Crowley was instructed by the writer, then manager, of the Citizens' company to elevate or lower the individual drop wires of the Bell as necessary to enable him to carry forward the work of construction. One night some forty of the wires were cut upon this Citizens' lead. The manager of the company sought legal advice and was informed the law was with the Bell company, as it was the first in the street. It was absolutely essential to the welfare of the new company that the main lead in question should be completed, so the writer issued orders to have the wires promptly replaced, and to guard the poles during the following night. Inasmuch as the Citizens' crew numbered about 100, while that of the Bell numbered but ten, no wires were cut during said night.

The management believed in publicity, and as a result the papers of the city gave elaborate accounts as to the wire cutting and the damage done by the Bell company. Whatever may have been public sentiment previous to this occasion, this unfair act on the part of the Bell, and done under orders of its officials, secured to the Citizens' company the sympathy and moral support of the entire community.

The next day the legal representative of the Bell company came from Detroit to Grand Rapids and had a long interview with the writer, who stated to him that the Citizens' company refused to recognize the right of the Bell to occupy exclusively both sides of the street, and announced the determination to carry forward the work of the Citizens' company exactly as planned. Possibly the attorney of the Bell company realized the justice in the position taken, for no additional wires were cut, and no other similar act of lawlessness was done. Bell representatives, however, canvassed the city, assuring the people that service could not be given, and even if it could be that the company would not be allowed to operate its plant by reason of the Bell patents. Every effort was made to discourage subscribers, stockholders and the company's directors and officials. As the time approached for requiring the services of operators, naturally those who had had previous experience were sought out by the new company, provided not then in the employ of the Bell. Just before the exchange opened, on July 1, 1896, the Bell by threats persuaded several of its old employes to leave the new company. Thus the exchange opened with a very large majority of the operators entirely new to the business. The switchboard was the first transfer board by an Independent company, and had been rushed to completion and hastily installed. In addition to other troubles natural to new operators and a new system, the lacquer work on the drops was not so thoroughly dry but that the extreme heat of July and August caused them to stick in many cases, thus greatly adding to the burdens of the new company. Mr. H. A. Douglas, now of Cedar Rapids, Iowa, had been secured as traffic manager, with Mr. Owen Freeman as his chief switchboard man. Largely through the efforts of these



Factory Menominee Electric and Manufacturing Company Menominee.

Cedar Yards of the Pittsburg & Lake Superior Iron Company, Escanaba.

two, and the loyalty and invaluable assistance of the few ex-Bell operators with the new company, together with the determination and untiring efforts of the new operators and other employes of the company, order was brought out of chaos, and by September the service of the local company was equal to that of the Bell. Improvement continued until by October the quality of service in most parts of the city was superior to that furnished by the old company.

The Bell exchange numbered 1,471 telephones April 1, 1896. The following October the success of the Citizens' company was so assured that nearly half the Bell subscribers ordered their telephones removed. Meanwhile the Citizens' growth was larger than could be conveniently cared for. In November the Bell company reduced its business rate to $24, and began the giving of free service to residence users, and for two years continued this policy. During that period they kept from five to twenty solicitors in the field, and placed telephones in anyone's residence without regard to cost of construction or probable future business. This resulted in a very large increase in the number of Bell telephones, so that at the end of the two years they had about 4,500 in service in Grand Rapids. Meanwhile the Citizens' company increased the number of its telephones each month and had reached about 2,500. It had not changed its rates, as it was realized that if the company could not maintain $30 and $20 rates, which were necessary to meet its financial demands, it would not be able to maintain any other rates, as undoubtedly the Bell would then continue to furnish less than cost service sufficiently long to force the local company into bankruptcy. It is to the credit of the business men of Grand Rapids and to the citizens generally that they recognized that the Bell company's effort was to ruin its competitor, and that they remained loyal to the local company. The new subscribers to the Bell, in a large majority of cases, had never expected to have telephones, and the apparent seriousness of the situation at the time was in part relieved by the financial standing of some of the Bell patrons. Thus, several families supported by the poor department of the city were able to order their supplies from their homes over the Bell telephone!

At the end of the two year period of free residence service the Bell established a $12 residence rate, resulting in the loss of nearly one-half of its subscribers. Meanwhile the Independent exchange continued to grow, the best evidence of which is the publication of the following table, which has appeared in each of the telephone directories issued from time to time by the Citizens' Telephone Company:

Directory.	Date Issued.	Telephones in G. R. Exchange.	State Line Telephones.	Total Telephones.
First	June 1, 1896	400	None.	400
Second	September 1, 1896	1,400	951	2,411
Third	January 1, 1897	1,776	1,628	3,404
Fourth	May 10, 1897	1,919	1,848	3,767
Fifth	Oct. 20, 1897	2,074	2,028	4,102
Sixth	April 22, 1898	2,326	4,382	6,708
Seventh	November 1, 1898	2,488	5,677	8,165
Eighth	May 1, 1899	2,841	19,043	21,884
Ninth	November 1, 1899	3,064	20,000	23,064
Tenth	May 8, 1900	3,306	21,888	25,194
Eleventh	November 1, 1900	3,428	22,000	25,428
Twelfth	May 6, 1901	3,559	24,050	27,609
Thirteenth	January 27, 1902	4,121	24,155	28,276
Fourteenth	September 10, 1902	4,768	29,450	34,218
Fifteenth	May 9, 1903	5,104	33,069	38,173
Sixteenth	December 21, 1903	5,277	39,335	44,602
Seventeenth	July 25, 1904	5,633	49,658	55,291
Eighteenth	January 24, 1905	6,237	59,725	65,962
Nineteenth	August 2, 1905	6,692	60,708	67,400
Twentieth	March 1, 1906	7,449	68,557	75,006
Twenty-first	September 15, 1906	7,998	80,013	88,011
In service	March 26, 1907	8,611	82,000	90,611

During its second year the Citizens' company established an improved switchboard manufactured by the American Electric Telephone Company of Chicago, whose telephones and apparatus it was using. It had a transfer capacity of 3,200 lines, and was equipped with the Beech-Cook transfer system. Later an electric light transfer was suggested by Mr. Douglas, which when installed greatly added to the efficiency of the service.

The Bell company followed these improvements of the Citizens' company by thoroughly rebuilding its plant and installing a modern central energy, multiple system, with which the Citizens' company continued to compete until its present automatic apparatus was installed in 1904. Mr. C. E. Tarte became the traffic manager of the Citizens' company in September, 1898. To his ability and expert knowledge belongs the credit of so handling and operating the said transfer switchboard and making such changes

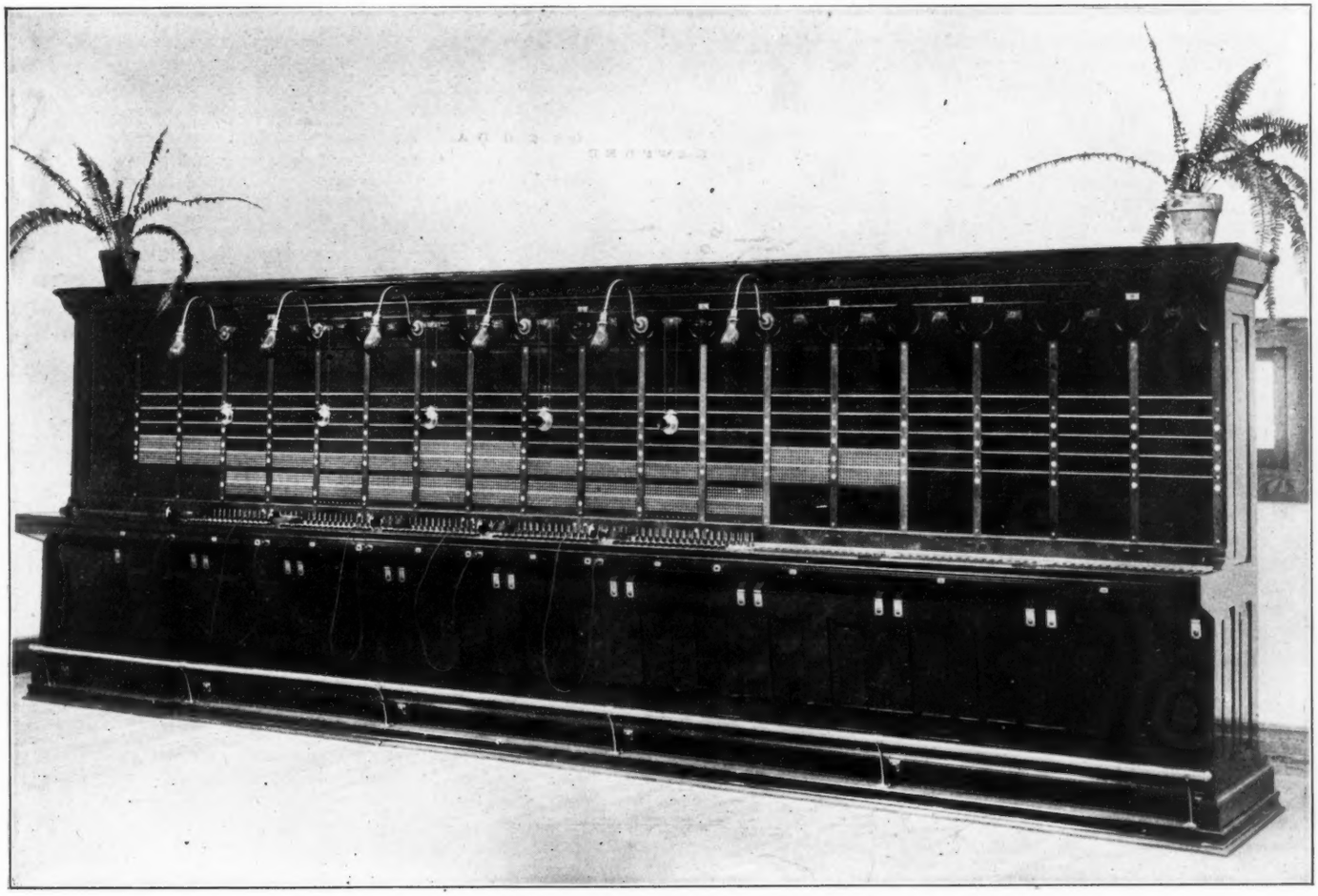
Roper Lumber and Cedar Company Yard, Menominee.

thereon as to provide service to the ever increasing list of subscribers of the Citizens' company until the number of telephones reached 5,300 on January 1, 1903—the largest number of telephones ever operated on a transfer switchboard—a number about twice as great as the Bell telephones in the city at that time.

Before proceeding with more recent history in connection with the Citizens' company, which has had unqualified success in every respect, we will consider other conditions existing in the state during the earlier days. Like other companies, it was originally expected that the Citizens' would be purely local in character. Its board of directors at first refused to consider the building of any toll lines to neighboring cities and towns. Before the Grand Rapids exchange was in working order the writer realized that it was necessary to have toll lines in connection therewith, and personally proceeded to construct one to the nearest neighboring exchange, being that located at Holland. This line was probably the first toll line built by the Independents in the state, being a copper metallic circuit about twenty-five miles long, on 6-inch top, 25-foot poles. It was placed in service July 4, 1896, four days after the local exchange at Grand Rapids had begun its service. The next year lines were built to Cadillac, also independent of the Citizens' company, but connecting therewith.

In September, 1896, a local Citizens' company was organized at Muskegon, and the next year toll lines were built by said company connecting with the Grand Rapids exchange. Along each of the toll lines mentioned, and others that were from time to time constructed, it was the endeavor of the various companies to establish toll offices in each town and village, and to develop local exchanges as far as possible. This in fact has been the policy of each of the Independent companies of the state, which largely accounts for the present ascendency and the very complete development of said interests.

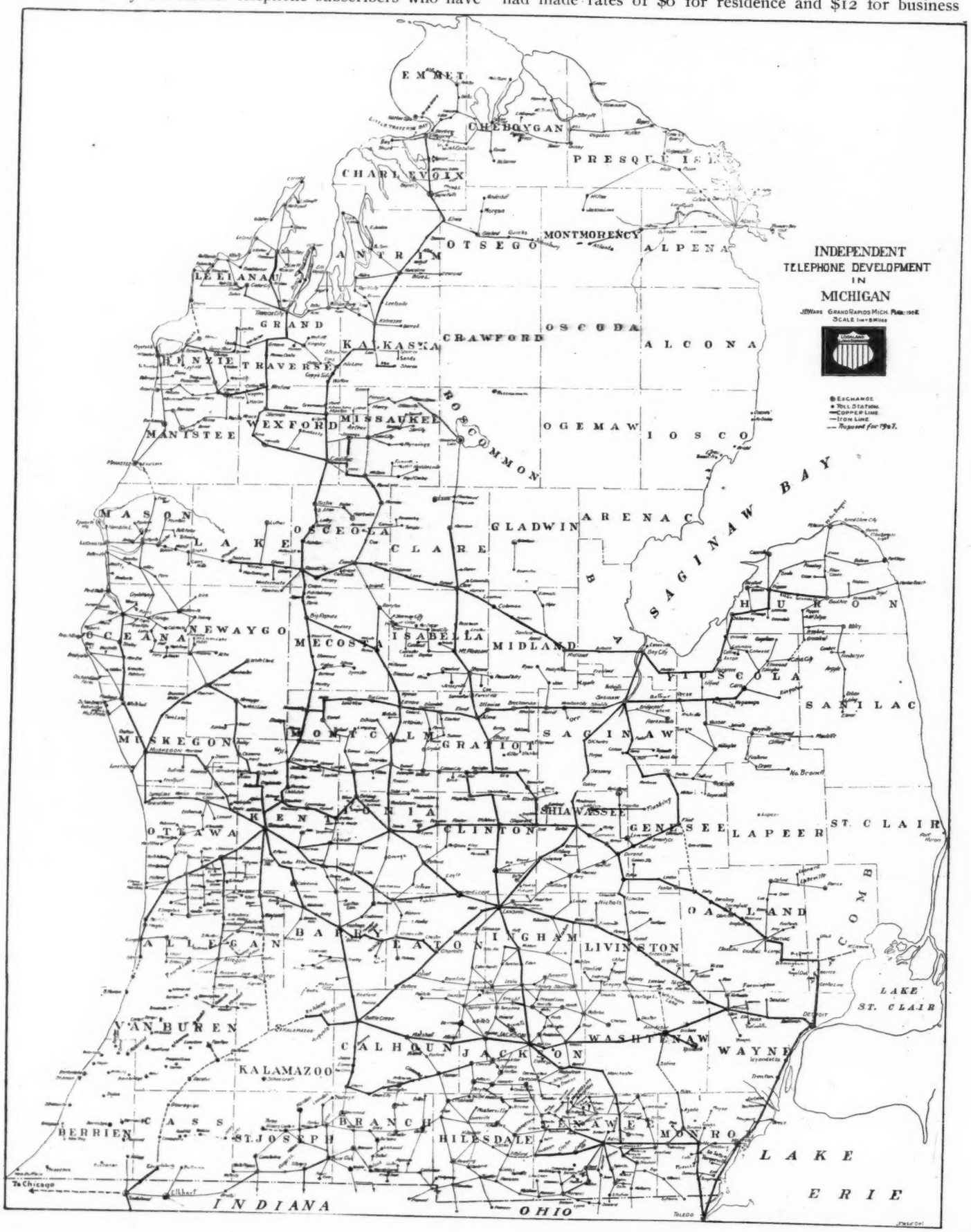
After operating its exchange two years, the board of directors of the Citizens' company at Grand Rapids were convinced that the toll lines were somewhat more profitable than the exchange business, and were also most valuable as strengthening and fortifying the local exchange. The Citizens' therefore purchased at approximate cost the lines to Holland and to Cadillac, together with the Holland exchange, and began the active development of other lines and the establishing of exchanges thereon. In the fall of 1898 a state or toll line was built along the Michigan Central railroad to Charlotte, and thence to Lansing, being hurried by the fact that it had been learned that the Detroit companies were endeavoring to dispose of their properties to the Michigan Bell.



Switchboard of the Washtenaw Home Telephone Company, Ann Arbor, Michigan.

In 1898 was demonstrated beyond cavil that in Michigan the Independent movement was flourishing, and it was apparent to the Bell officials that radical action was necessary. The first drastic effort made on the part of the Bell was to offer service in a large number of towns at less than cost. Thus in Hastings, where there was a small Bell exchange of less than a hundred telephones, the Citizens' company prepared to build one with rates $12 for residence and $20 for business telephones. The Bell immediately cut its rates to $6 for residence and $18 for business purposes, and placed three canvassers in the field. The result was that in spite of the higher rates for residence service the Citizens' exchange was established with more than a hundred telephones, which rapidly increased, year by year, until at the present time, with a population of about 3,300, Hastings

has 680 Citizens' telephones, the Bell having but four remaining in the town. In part this large development is accounted for by the farmer telephone subscribers who have been added to the exchange. Like results occurred at various places in the state, Lowell being one. There the Bell had made rates of $6 for residence and $12 for business



service and built up an exchange of 154 telephones just before competition entered. In order to get a foothold not only was Lowell itself built by the Independent company, but the farmers in each direction were furnished with telephones at reasonable rates, with the result that success crowned the Independent efforts even at the much higher

Main Exchange Building Home Telephone Company of Detroit.

rates than then being charged by the Bell, and to-day there are but five Bell telephones in Lowell, and about 400 Citizens' telephones.

In addition to the support which the public generally were giving to the various Independent companies in the state, by reason of their furnishing better and more extensive local service than the Bell, and at lower rates than

Branch Exchange Home Telephone Company of Detroit.

it had formerly charged, the fact that all such local companies were endeavoring to properly care for their rural communities was of great advantage to them. The Bell had not only refused in years past to build lines to the farmers at any price, but in many instances during the years just mentioned before the Independent companies had been able to establish local exchanges in the towns and villages, the farmers who offered to build their own lines, according to any reasonable specification that might be prescribed, were refused connection by the Bell company upon any terms, Owing to this policy of the Bell, and the admission on the part of its officers and employes that the new rates which they made in various parts of the state were purely war measures, the people generally refused to accept the bribe offered and continued their hearty support of the local companies. This frankness on the part of the Bell officials to state that an appeal to the pocket books of telephone users would decide the issue is illustrated by a statement made by the Bell manager of the Grand Rapids exchange to two stockholders of the local company, when he said: "We expect eventually to control the telephone business. It is then merely a question of bookkeeping and interest, and you gentlemen will pay for our present losses." That this was the belief and intention on the part of the higher officials of the Bell cannot be doubted, and if the Bell should ever become again supreme in the telephone world can there

Building of the Washtenaw Home Telephone Company, Ann Arbor.

be any question but that this policy would be established, and that an endeavor would be made by high rates to recoup for past losses?

A crisis in the telephone situation of the state rapidly came to a head in 1899. The Erie Telephone Company's management of the Michigan Bell company, under President Charles J. Glidden, the self-styled "Telephone King," was spectacular, strenuous and ultimately disastrous to Bell interests in Michigan. As already indicated the Independents were active, progressive and victorious in all parts of the state. In addition to what has been herein recited, other interesting and important facts should be mentioned as influencing nearby events.

In Battle Creek, Charlotte and other places local exchanges had been built or were under way. Not only did Kalamazoo have a growing exchange of over 600 telephones, but its Central Telephone Company's toll lines extended via Battle Creek and Albion to Lansing; from Grand Rapids to Kalamazoo, Dowagiac and Niles, and covered thoroughly the Benton Harbor, South Haven, Hartford, Paw Paw district. The Adrian section, with the great state of Ohio to the south, was rapidly developing, and the result of the friendliness to and efforts of the Independent companies in behalf of the farmers was yielding a magnificent harvest in the rural companies springing up in many parts of the state and always natural allies of

the Independents and antagonistic to their old enemy, the Bell.

Perhaps as a final fact greatly bearing on the situation was the success of the Detroit companies. The New State Telephone Company had built its lines from Detroit to Toledo, to Jackson, to Lansing and Grand Rapids; to Pontiac, Flint and Saginaw, and to Port Huron; being the largest opposition toll line system in the state. Upon these it had built exchanges in Monroe, Ypsilanti, Ann Arbor, Jackson, Eaton Rapids, Grand Ledge, Ionia, Belding, Pontiac, Lapeer, Mt. Clemens and Port Huron, besides an equal number of lesser note in its territory. It was doing a fine business, paying good dividends from its profits, and owned more than 4,000 of the telephones in its system. Its associated company, the Detroit Telephone Company, had developed its exchange to more than 5,000 telephones.

Thus at the beginning of 1899 the outlook for the Bell was most threatening. Its effort to retard Independent growth by furnishing less than cost service had no effect on the movement, unless to cause increased activity. Not an Independent company had failed, and those owning sixty per cent of the telephones in the state were paying eight per cent dividends from their profits. Meanwhile the Michigan Bell had been rebuilding its plants and endeavoring to compete in the quality of its service, with the result that while expending large amounts upon construction it had not been increasing its subscriber business materially, but was rapidly decreasing its average income per telephone. Its officials apparently had become thoroughly frightened and realized the Independents were threatening the very life of the company.

It was an opportune time for any with disloyal motives to make terms with the former giant. Before the end of the year negotiations had been completed for the selling of the Detroit and New State companies to the Erie-Bell. It also was so arranged with the Kalamazoo companies. The effort made to induce the Citizens' Telephone Company to join such sale was spurned. Time and lack of space does not permit the writer at this time to enter into a recital of the most surprising and at the same time most inexcusable and traitorous transaction ever perpetrated in the state. Suffice it to say that by basest trickery, in the writer's judgment, the stockholders of the New State Company were induced in December, 1899, to vote to increase the authorized stock issue from $800,000 to $1,500,000, and late in January, 1900, the $700,000 treasury stock, with enough of outstanding old issue to give a majority, was sold to the Michigan Bell Company. Thus was consummated the transaction which resulted in the ultimate loss of every dollar invested by the New State stockholders. A few days later (Feb. 2, 1900) the Kalamazoo companies were sold to the Bell, equally betraying the other Independent companies of the state, but securing to the Kalamazoo stockholders in cash dollar for dollar invested.

The telephones thus transferred to the Bell by reason of the sales named were:

The Detroit Telephone Company	5,200
New State Telephone Company	4,457
Mutual Telephone Company, Kalamazoo	819
Central Telephone Company, Kalamazoo	413
Total telephones	10,889

There remained less than 30,000 Independent telephones in the state in 1900.

Following the sales of the above to the Bell, the state association held its annual meeting in Battle Creek on February 14, 1900, at which Judge J. M. Thomas, of Cleveland, president of the United States Telephone Company (Ohio), was present. He proposed that his company would extend their long-distance lines into Michigan as soon as the Independent companies entered into a state compact insuring permanency. Under authority then given by the association the writer arranged a contract with Mr. H. D. Critchfield, attorney for the United States company, which contract drawn for a twenty-five-year period, was signed by the said United States Telephone Company, and by Michigan companies owning over 70 per cent of the telephones then in the state. The United States telephone lines were built as promised, being the line from Toledo to Jackson, Lansing and Saginaw, as shown upon the map of the Michigan toll lines published as a part of this article.

Perhaps the value of a state and national association is nowhere better shown than in connection with the incident just related.

As representing the largest operating company in the state the writer issued the first call for a convention of the Independent companies, which was held in Detroit, June 21, 1897. Here was organized the Michigan Independent Telephone Association, with the following officers: J. B. Ware, president, Grand Rapids; W. L. Holmes, vice-president, Detroit; J. E. Davidson, second vice-president, Bay City; G. W. Finch, third vice-president, Escanaba; Alex. J. McLeod, secretary, Detroit; J. H. Fildew, treasurer, St. Johns.

The executive committee was composed of the president, secretary, treasurer, and J. Williams, Jr., Adrian; S. G. Higgins, Saginaw; F. B. Johnson, Lansing; Hugh Park, Muskegon; Geo. A. Weed, Lake Odessa; E. H. Parker, Detroit.

Annual meetings have been held in Grand Rapids, 1898; Lansing, 1899; Battle Creek, 1900; Lansing, 1901; Detroit, 1902; Jackson, 1903; Grand Rapids, 1904; Lansing, 1905; Ann Arbor, 1906; Coldwater, 1907.

The present officers of the association are: E. B. Fisher, president, Grand Rapids; A. C. Himebaugh, treasurer, Burr Oak; W. S. Vivian, secretary, Grand Rapids. Two strong and successful organizations are auxiliary to the state association, being the Michigan Independent Traffic Association, with C. E. Tarte president, and the Michigan Telephone Managers Association, with F. V. Newman president.

The National Independent Telephone Association of the United States of America was organized June 23, 1897, the meeting being held in Detroit; Judge J. M. Thomas being elected first president, in which capacity he served for seven years with great honor to himself and of inestimable advantage to the Independent movement.

Michigan has heartily supported the National association from its birth. Hon. E. B. Fisher, Grand Rapids, was chosen its first member of the advisory board, and served in that capacity until the association was merged into the present International Independent Telephone Association, in which Mr. Fisher is the state association's official representative. The state has had but one office in the National association, being the secretaryship in 1902-3, held by the writer.

From necessity much that the writer would like to include is omitted as to the events and data bringing this historical sketch down to 1907—the present.

The first building, exclusively for an Independent telephone exchange in Michigan, was erected in 1903, in Grand Rapids, by the Citizens' company (82 x 146), and equipped with an ultimate capacity of 19,000 lines.

The apparatus of the Automatic Electric Company, Chicago, was installed, service being commenced on January 9, 1904. It was necessary to increase the exchange rates to the maximum allowed by the franchise, being $24 for residence and $36 for business telephones, and on March 15, 1904, the subscribers of the company were notified of the change in rates to be made on April 1 following. It seemed very remarkable that while this change increased the revenue of the company over $25,000, not one protest was received by the company or any newspaper, and that while the number of telephones lost in April was fifty-two, the number of new subscribers that month was sixty-four, thus leaving the company with twelve more telephones at the end of the month than before the increased rates were

made. Three months after the change in rates the net increase to the company was 113 telephones. The increase for the year was 1,028 telephones. The following year the increase was 1,126 and the last year (1906) the increase was 1,146. At the time that the Citizens' Telephone Company made the change in rates the Bell increased its service charges six dollars per year (to $18 and $30), and has since maintained its rates six dollars less per year than those of the Citizens' company. At this date (March 20, 1907) the Bell has about 3,500 telephones in Grand Rapids and the Citizens' 8,549. In its system the Citizens' company owns over 27,000 telephones, with over 3,700 miles of metallic circuits for long-distance purposes. It has no bonds out and has paid eight per cent dividends on its stock

This map without the bars, was issued by the Erie-Bell in May, 1900, shortly after its purchase of the Detroit companies. Mr. Ware promptly corrected and republished the map, as above reproduced, with this signed statement,—"The lines crossed out by bars are not built—the Michigan Telephone Company has no wires or poles there now (June, 1900), nor has it ever had."

for over nine years in 38 two per cent consecutive quarterly cash dividends.

Among those to whom large credit is due for the remarkable and continued success of the Citizens' Telephone Company is its present general manager, Mr. C. E. Tarte. Because of his very able and thorough handling of the company's electrical interests, its service is admitted to be unsurpassed, and by its Grand Rapids patrons believed to be unequaled.

The Union Telephone Company, Alma, has 7,000 telephones. It has paid eight per cent dividends for eight years past, which is likewise true of the Muskegon and Adrian companies.

When the Union Company of Alma had been organized, through the personal efforts of Mr. C. O. Trask, and incorporated on March 22, 1899, absorbing the Gratiot County Telephone Company and the Montcalm County Telephone Company, it very rapidly spread over the middle portion of the state north of Lansing with Alma as the center. The Valley Telephone Company, incorporated April 23, 1897, had made great headway in Bay City, Saginaw and Flint, and had later spread over the entire northern portion of the "Thumb." Its activity and success was largely due to its general manager, Mr. R. F. Johnson, of Saginaw.

The Saginaw Valley Telephone Company has 5,300 telephones. It has recently been granted a new franchise in Saginaw, fair to company and city, and $100,000 new capital provided for rebuilding and extensions.

The Livingston Home Telephone Company, Howell, was incorporated September 17, 1901. It has developed most of the territory between Lansing and Detroit, including the excellent long distance copper circuit lines. Its president, Mr. R. B. McPherson, has not only been its leading factor and supervisor, but he has been one of the most active and influential telephone men of the state, and much of the present most excellent and promising conditions in eastern Michigan is due to his efforts and personality.

There are over 150 Independent companies in the state, operating about 100,000 telephones, of which about half are owned by six of the largest companies. Over 12,000 stockholders, citizens of Michigan, own these companies, among which have been no financial failures, and whose outlook is exceedingly bright.

It is impossible in this article to give the history of the financial failure of the Michigan Telephone Company (Bell), by which its property was sold under a foreclosure decree upon its $5,000,000 mortgage, in December, 1903. At that time the American Telephone & Telegraph Company had $3,687,300 of the Michigan Bell stock—the control—the balance of $1,312,700 being owned by 743 individuals who never realized one dollar upon their holdings.

The old company was succeeded by the Michigan State Telephone Company, with heavier capitalization than had its predecessor. The new company is a Bell licensee, and the control of the stock lies outside the state. In Michigan reside but 76 of its 855 stockholders, and but 2 78-100 per cent of its stock is held in the state.

These figures are based upon the company's annual report filed in January, 1906, with the secretary of state, Lansing, as provided by law, which shows the stock held in the state is distributed as follows:

	Holders.	Shares.
In Detroit	26	1,529
Grand Rapids	10	426
Manistee	2	146
Upper Peninsula	6	90
Twenty-nine other places	32	111
Total	76	2,302

The total shares outstanding are 82,850; each, $100.

Thus, whatever controversy exists in the telephone field in Michigan is between the interests of the Independent companies owned by many citizens of the state on one side, and on the other the Bell licensee company with over ninety-seven per cent of its stock owned outside the state. In the judgment of the writer the Independent interests have very much the advantage at the present time, with the indications for the future all favorable to them.

Owing to the unfortunate experiences of the city of Detroit in telephone matters, more than ordinary interest in the state and the country at large centers upon the present development of that city by the Home Telephone Company, with Mr. W. B. Woodbury as general manager. In order that special attention might be given to this interest, the writer has left for TELEPHONY the treatment of the present situation in Detroit, which follows:

The Detroit situation is attracting a great deal of attention, not only in Michigan, but in the country at large, owing to the fact that Independent telephony has had several rather unfortunate experiences in the City of the Straits.

The Home Telephone Company of Detroit, the latest entry in the field, is the fourth corporation to offer competition to the Michigan State Telephone Company, which is the Bell licensee. The Home Telephone Company of Detroit is amply backed by St. Louis, Detroit and eastern capital, and has the amount of money necessary

to build the plant, something over $3,000,000, actually in bank, and ready to be put into the work as it progresses. The Home Telephone Company is being financed as an investment and not as a promotion scheme.

The most conservative ideas have ruled throughout in laying the foundation of the financial plan. The bonds carry a sinking fund provision of approximately two and one-half per cent of the gross. This sum is to be deposited with the trustee and to be used for the purchase of securities of the company. In addition to this reserve for bonds there is also a further cash reserve provided of five per cent of the gross earnings. This reserve is to be an actual cash reserve. There are very few telephone companies in the country, either Bell or Independent, that have this cash reserve provision—in fact the Keystone Telephone Company of Philadelphia, which has a cash reserve of $3.50 per telephone, and the Chicago Bell, which maintains a cash reserve of approximately $2.28 per telephone, are the only telephone companies in the country which absolutely maintain intact a cash reserve. The trustee of the bonds of the Home Telephone Company is the Commonwealth Trust Company of St. Louis, one of the strongest financial institutions of the west, and the members of the underwriting syndicate include men of such financial standing as Edward F. Goltra, Adolph Busch, Edward A. Faust, Henry Koehler, Jr., Hugo A. Koehler, C. Marquard Forster, Arthur W. Lamber, Thomas H. Wagner, Joseph Glaser, A. H. Bauer, Ben Altheimer, Herman C. Stiefel, Henry Nicolaus, Peter J. Doerr and many others who are recognized captains of finance.

Interested in the long distance development (for which a $15,000,000 company, known as the Interstate Long Distance Telephone Company was recently organized with $10,000,000 preferred stock and $5,000,000 common stock, are some of the best known men in the city of Detroit, including William T. Barbour, president of the Detroit Stove Works; F. T. Moran, capitalist; Henry C. Potter, Jr., and George E. Lawson, vice-presidents of the People's State Bank, the strongest bank in Michigan, and John M. Dwyer, president of the Peninsular Stove Company. These gentlemen are not only interested in the company which proposes the long distance development, but are also directors of the Home Telephone Company of Detroit.

The construction work of the Home Telephone Company of Detroit is being done by the Electric Construction Company of St. Louis, Missouri, the officers of which are Max Koehler, president; W. B. Woodbury, general manager; B. H. Brooks, chief engineer. The work is being done by the construction company without any cash profit. This is a notable departure from the usual procedure in such cases. The fact that this plant is being built under the plans and specifications of Mr. Charles H. Ledlie, the eminent consulting engineer, is a sufficient guarantee as to quality. Owing to climatic conditions, and the great number of trees, Mr. Ledlie recommended that practically all of the area bounded by the boulevards and the river, with the exception of a small piece of the northwest and northeast corners, be underground work and connecting each one of the subexchanges with the main exchange through subway. The distribution system will be made in this area either by direct laterals to buildings or by block alley aerial distribution. This subway will contain approximately 3,000,000 duct feet and will be amply large for 30,000 telephones. Detroit will have the largest telephone subway system in the world.

While the first cost will be excessive at the same time the cost of maintenance will be reduced and experience has shown that the reduction of cost of maintenance on subway over aerial work will more than pay the difference of the interest, etc., on the cost of the subway, and then, too, subway construction insures more positive service to subscribers.

The central exchange district, which is practically the area bounded by the boulevards and the river, is rapidly nearing completion. About 6,000 poles have been set in this district, including terminal poles, and the greater part of the subway has been completed.

The central exchange building at the northwest corner of John R and Madison streets, which occupies a most commanding position, is about one-third done, and as soon as the weather becomes more favorable will be pushed rapidly to completion. The structure represents the very best thought and experience of years in the construction of telephone exchanges. In preparing the plans the architects, Messrs. Stratton & Baldwin, consulted with telephone experts in nearly all of the large cities in the country, and also had the constant advice of Mr. Ledlie.

The location of the building being in a most desirable neighborhood it was thought best to abandon the idea of installing an independent heating and power plant for the new building, and to contract for heat and power with the local heating and power companies, so no heating or power plant will go into the new building, and consequently the smoke nuisance will be abated. The building is 100 x 105 feet. The exterior is to be finished with terra cotta up to the sills of the second story and to have granite about the main entrance. The second and third stories with be finished on the outside with red pressed brick, and the entire building will be capped with a heavy ornamental terra cotta cornice. The first story will accommodate the general manager's office and the various staff employes in the construction and accounting departments, also a directors' room and a large and well lighted room for the draughting and engineering departments.

The public will enter through a vestibule which is finished with ornamental terra cotta walls and ceiling, with a granite flight of steps. The vestibule will open into a public lobby with marble floors and wainscoting, and about this lobby the various business offices will be arranged. From the center of this lobby a grand staircase leads to the third story. It is constructed of marble and will have rubber tiling on treads and landings, silence being one of the principal results to be obtained. Opening from the main hall in the second story will be commodious rooms designed for the comfort of the many telephone switchboard operators. These rooms are arranged en suite and consist of a large lounging room, dining room and kitchen, locker room and toilet room. The latter, on this floor, as well as the others throughout the building, are equipped with the highest class of plumbing. On the second floor provision has been made also for the long distance operating room, terminal room and battery room. The interesting feature of the third floor lies in the fact that it has been entirely given up to the main exchange switchboard operating room, and it is designed to have a lofty ceiling, over twenty-five feet in height, entirely carried by trusses, thus keeping the operating floor space free from posts or columns. The room is well lighted with windows about the four sides and is provided with a mechanical fan exhaust system for heating and ventilating. The vacuum system of cleaning will also be installed for the cleaning of the switchboards and for the cleaning of the building generally.

The switchboard apparatus is being constructed by the Dean Electric Company, of Elyria, Ohio, of which W. W. Dean is vice-president and chief engineer. The central exchange switchboard has 15,000 line capacity, bridge multiple lamp line signal, central energy, consisting of twenty-seven "A" sections of three operators' positions each, and one end section equipped for the immediate operation of eight thousand subscribers' lines with three hundred and eighty outgoing trunks; also seven "B" sections of two operators' positions each, equipped for the immediate opera-

tion of three hundred and fifty-one incoming trunks and the necessary lines and trunks to the desk.

The protectors for Detroit are being manufactured by the American Electric Fuse Company of Muskegon. This will be the largest installation of protectors ever made in the Independent field.

The west exchange, which is located at the corner of Lafayette and Dragoon streets, will have a switchboard of 7,200 lines ultimate capacity, consisting of six sections of three operators' positions each, and one end section equipped for the immediate operation of eight hundred subscribers' lines, two hundred and forty outgoing trunk lines, two hundred and forty-three incoming trunk lines and the necessary lines and trunks to the desks.

The north exchange, which is located at John R. and Bethune streets, will have 7,200 line ultimate capacity, consisting of twelve sections of three operators' positions each, and one end section equipped for the immediate operation of twenty-four hundred subscribers' lines, two hundred and forty outgoing trunk lines, two hundred and forty-three incoming trunk lines, and the necessary lines and trunks to the desks.

The east exchange, which is located at the corner of Sylvester and Field streets, will have 7,200 line ultimate capacity, consisting of eight sections of three operators' positions each, and one end section equipped for the immediate operation of 1,300 subscribers' lines, two hundred and forty outgoing trunks and two hundred and forty-three incoming trunks. It will serve the eastern section of the city.

These four exchange buildings are about two-thirds completed, and the work of their construction is progressing at a very satisfactory rate. As they are all similar an illustration is shown of one only.

The work of installing the switchboards will commence between the fifteenth of May and the first of June. The company expects to be occupying its new building by the first of June.

The engineering work for the Home Telephone Company and for the Interstate Long Distance Company is being handled by Mr. B. H. Brooks, chief engineer, who is also general superintendent of the two companies. Mr. Brooks is an engineer of wide experience, and is bringing to the Detroit plant the very best thought and experience in his chosen field.

Mr. W. W. Grayson is the auditor of both companies, and also the representative of the Commonwealth Trust Company on the ground.

Mr. Joseph Lillich of St. Louis is the representative of Mr. Ledlie, the consulting engineer.

Mr. Charles H. Hood, of Detroit, who has had wide experience in the development of telephone properties, is the contract agent of the Home company, as well as of the Interstate company, and has exclusive charge of the development. Under Mr. Hood's able direction the company has already nearly 11,000 contracts, every one of which has been verified by him and by personal visit and inspection.

Mr. W. H. Woodbury, of Columbus and Cleveland, is vice-president and general manager of both the Home Telephone Company and Interstate Long Distance Telephone Company. He is a man of wide experience and will be heard from in the future telephone history of Michigan.

The fight in Detroit has been a spectacular one from the very start. The canvass was actively instituted about the first day of April, 1906, and has continued with unabated industry to the present time.

The unfortunate experiences of the past which the people of Detroit have undergone had a tendency to make contracts come harder in the beginning. The people, while ready to welcome the proper kind of competition, were not absolutely certain in their own minds that the new company meant business, there had been so many instances of competition starting, obtaining a good foothold and then selling out to the Bell, the Bell afterward following the usual tactics made and provided in such cases.

It was not until the Home Telephone Company had shown the people that it intended to build the most modern telephone plant in America and that money was no object where its value was received in quality that the people began to have confidence in the proposition. This confidence has been steadily growing until to-day the people of Detroit believe that the Home Telephone Company is an honest, conservative, well-managed investment seeking proposition.

The Interstate Long-Distance Telephone Company of Detroit, the long-distance end of the Home Telephone Company, proposes spending about $1,500,000 this year in the development of the long-distance situation in Michigan.

The first estimate contemplates four heavy trunk lines and one spur line. The trunk lines will radiate from Detroit to Toledo where the lines of the United States Telephone Company are tapped and messages transmitted into Ohio, Indiana, Pennsylvania, New York, West Virginia, Kentucky and other states; from Detroit to Jackson, where connection is made with the lines of the Citizens' company to Grand Rapids, and through them connection is made at Lawton, Michigan, with the South Bend company for Chicago connections; from Detroit to Lansing, the capital of the state, where connections are made with the Grand Rapids system, to its 78 exchanges, and some 30,000 telephones, and the other systems that lie to the north, west and east of them; from Detroit to Holly, where the lines of the Saginaw and Bay City companies with the other development in the thumb of Michigan are tapped, and also where the connection is made with the large and flourishing system of the Union Telephone Company at Alma, Owosso and other points and the spur line running from Detroit to Port Huron tapping Mt. Clemens, Port Huron and other points where only the Bell have exchanges at the present time, and where a strong and powerful Independent movement will soon be inaugurated.

TELEPHONES ON THE BURLINGTON.

The Chicago, Burlington & Quincy Railroad has nearly completed a telephone system of its own along the St. Paul division. Telephone wires are being strung on the telegraph poles, and it is expected the new service will largely contribute to the safe operation of trains. Every station along the line will be provided with a telephone by which the agent may communicate only with the station nearest him in each direction. When a train leaves a station the agent will telephone the stations on either side of him notifying the agents of the fact. By this means a block system of running the trains will be made possible—that is two trains will not be allowed to be running between any two adjoining stations at the same time. The telegraph lines are so busy with long distance work that it is impossible for local operators to get the wires.

TELEPHONES FOR THE INDIANS.

An extensive telephone system is to be installed on the Cheyenne River Indian reservation. Heretofore the government officers in charge of the various Indian sections of South Dakota have had difficulty in communicating with remote points on the reservations, having to depend upon couriers in conveying orders to the various substations and in receiving reports from the subordinate officials stationed at various points on the reservations. Now an up-to-date telephone system is to be built. The proposed new lines will aggregate about one hundred and thirty miles in length and will connect the United States Indian agent in charge of the reservation with the three substations on the reservation and all the Indian schools. The work of constructing the line will commence soon.

THE WIRE CHIEF'S DESK EQUIPMENT

A General Discussion of the Testing Appliances and Arrangements Required by the Wire Chief of a Modern Exchange

By H. P. Clausen

BEFORE entering into a general discussion of the different testing equipments which should form a part of every well-designed wire chief desk, let us discuss the question of the wire chief's working place.

First, as a rule, most engineers favor placing a wire chief's desk in such a position that ready access may be had to the protector—or, what is commonly named, the switchboard side—of the main cross-connecting frame, for, upon receipt of any ordinary trouble report, the first act on the wire chief's part would be to insert the test plug

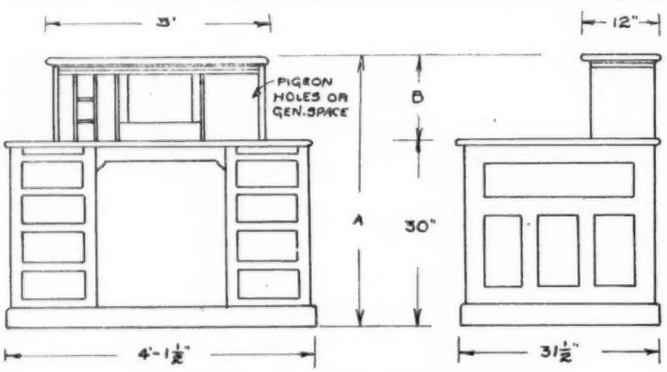


Figure 1—Single Position Wire Chief Desk.

into the protector spring so as to permit of testing for the trouble and thus immediately determine whether it is "in" or "out." Therefore, the desk should be placed so that the protector side of the main frame is readily accessible. As a second consideration, we have the location of the power equipment. As a rule the average common battery exchange is so laid out that whenever one works at the power board, particularly at the motor starting panel, he is enabled to observe the operation of the machinery, and if we then consider that the fuse board is generally located beside the charging and discharging panels of the power plant, it is easy to see that the logical location of the wire chief desk would be somewhere within easy walking distance of the power and fuse board equipment.

Granting that this relative arrangement between the wire chief desk, the protector rack and the power equipment is acceptable, we need pay no particular attention to the location of the intermediate cross-connecting board or relay rack. One point, however, may be added, namely, with the switchboard located, say, on a floor immediately over the terminal room, the wire chief desk should be somewhere near the stairway leading to the exchange room; and with a switchboard on the same floor with the terminal apparatus, it is an obvious advantage to have the wire chief desk located reasonably close to the "rear of the switchboard" entrance to the exchange room.

However, in locating the desk, due consideration should be given to the fact that numerous tests which are made by a wire chief call for comparatively quiet surroundings, and that easy access to the power plant may be sacrificed as a first consideration in designating the location of the wire chief desk. With regard to the construction of the desk, local conditions, of course, determine the general dimensions. For small exchanges, however, the single position desk is best adapted for general purposes.

Figure 1 shows a general outline of such a desk. In case an exchange calls for wire chief's equipment consisting of more than one position, Figure 2 may be adopted, this being practically a desk similar to that shown in Figure 1, extended in length and provided with two operators' positions.

It will be observed that both of the desks shown are of the low table type. In the past year, however, more experience has been gained in providing the most suitably arranged desk for the use of a wire chief.

Figure 3 shows one of the types which the writer believes has many points of superiority over the low type top. It will be observed that the key board of the standing type desk is about forty-four inches high, the slanting portion of the keyboard being slightly lower. This desk, then, is of a height which permits a person to stand before it and make the different test combinations. Of course, when a wire chief is located at a desk and remains there for hours at a time, there is no question but that the low top table would be preferable, but as in most exchanges the wire chief is required to do his own setting up of test clips, opening of fuses, etc., it then becomes quite tiresome to be required to sit on a low chair and arise again every time a test is made. With the standing type desk chairs can, of course, be provided, but for rapid work the wire chief will simply set up the testing clips, say, on the protector rack, and upon returning to the desk, he is not required to sit down nor lean over in order to make the required key combinations for a particular test, but may make the test while standing up and return to set up another connection without seating himself. It is thought, therefore, that in the medium size exchanges the desk shown by Figure 3 will prove to be the most acceptable one.

In order to place the testing requirements of the wire chief desk before us in an easily understood manner it may be well to analyze the different divisions of the work.

First. The wire chief must be able to test a line circuit from the protector rack towards the switchboard and towards the outside line. Further, he must be able to reach

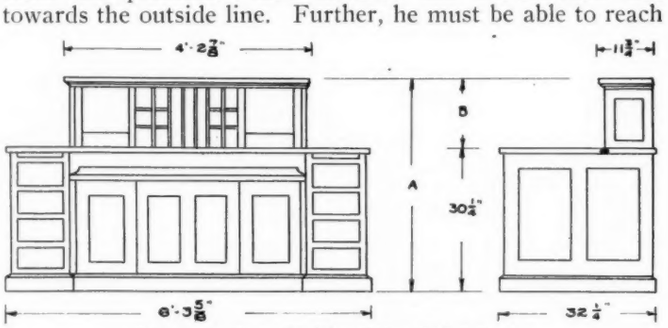


Figure 2—Two Position Wire Chief Desk.

the protector rack from the switchboard end, and, as a rule, provisions should be made for testing from the first section to the last section of the switchboard, and between these two points to the switchboard side of the protector rack. Again, aside from providing means which will be described later on for making these different inside and outside tests, the desk is generally provided with means for permitting any subscriber's circuit to be supervised either for the purpose of discovering intermittent faults, observing traffic, or holding lines which are being equipped or repaired.

The test equipment called for in the average desk consists of a voltmeter provided with at least one low reading scale, and another scale graduated from 0 to 150 volts, and sometimes a third scale is added reading up to 600 volts. Recently, owing to the increased number of long distance lines terminating in most exchanges, the wire chief is provided with a suitable type of Wheatstone bridge with which he may make accurate resistance measurements and which is provided with ready means for permitting the application of such tests as the Murray or Varley loop. Some engineers also favor the installation of the milli-ammeter, although the uses of this instrument are of questionable value.

In designing the circuit requirements of a wire chief desk, we will first consider the most important one, namely, the four conductor test trunk from the wire chief desk to the terminal room. Such an arrangement is shown by Figure 4 and consists of two jacks terminating on the main frame and so arranged that through an auxiliary plug, connection may be made between any subscriber's line circuit and the wire chief's desk. Assuming, for example, that such a connection has been set up, the subscriber's line terminates on the wire chief desk in a jack marked "test out," and it will further be observed that the line relay and lamp signal are so connected to the "test out" trunk that

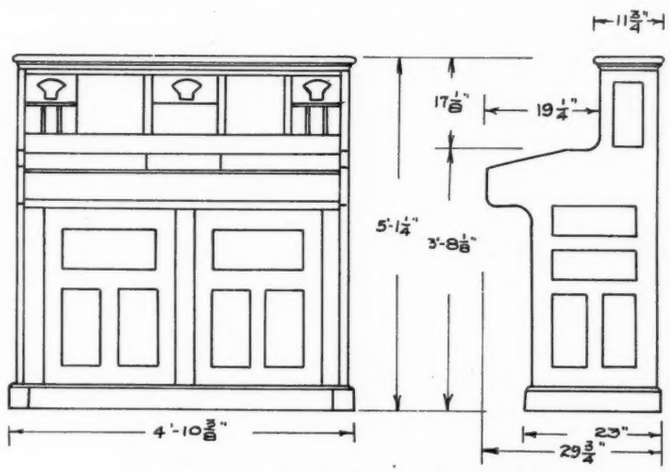


Figure 3—Standing Type Wire Chief Desk.

should the subscriber remove his receiver from the hook switch, battery would flow over the line circuit through the line signal relay and light the line lamp on the wire chief desk.

It is understood, of course, that whenever a line has been plugged up at the protector rack, the subscriber's line is no longer connected with the main switchboard. Any call extended from his station will terminate in a signal on the wire chief desk.

Now, with regard to the switchboard side of the circuit: This, it will be observed, terminates from the terminal room into the "test in" jack, and this jack is provided with circuit connections which will produce a signal on the wire chief desk should the main operator ring over the plugged up subscriber's line. So, then, as we have the circuit arranged, whenever a given line has been plugged up towards the wire chief's desk, the line is severed so far as direct service between the main switchboard and the subscriber is concerned, but the wire chief will get the signal from either the switchboard or the subscriber whenever a call is projected.

Now, let us assume that owing to being in trouble a line has been plugged up on the wire chief desk and that a subscriber calls for central. The wire chief will answer the call, and if he sees fit will connect together the "test in" and "test out" jack by means of a cord circuit such as is shown by Figure 5. It will further be observed that the moment the Figure 5 cord circuit has been used for extending through a connection between the subscriber's line and the switchboard circuit, the signal is immediately recorded on the main switchboard, and that means is provided for the wire chief to observe the operation of the circuit through a proper manipulation of the operator's set cutting-in key which forms a part of the Figure 5 cord circuit.

Referring now to Figure 6, this shows a wire chief uni-

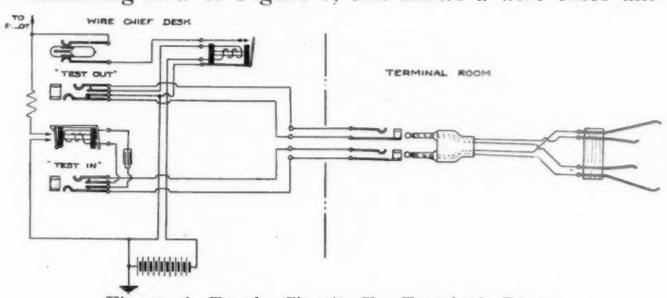


Figure 4—Trunk Circuit To Terminal Room.

versal test circuit. It terminates in a jack at one end and a plug at the other. This test circuit contains an equipment of keys, impedance coils, a relay and a signal lamp with which any of the following tests may be made without any special apparatus, and by simply plugging into the jacks shown by Figure 4. It may be added that whenever the universal test circuit is installed in a desk, it should be furnished in duplicate, and, better still, four such testing circuits may be used to good advantage with each wire chief's position equipment.

Referring to Figure 6, say that the test plug has been inserted into a "test out" jack shown by Figure 4, and that this circuit has been connected to a subscriber's line in a manner already described. First, it will be observed that the tip circuit of this test plug extends throughout the series of keys and finally terminates in the tip of the spring jack. It also will be observed that the sleeve of the test plug makes a direct connection through to the sleeve of the test jack. With such a connection set up, the following combinations may be executed:

By throwing key *J* a howler current may be projected over the subscriber's line. By throwing key *H* generator current of any required character may be projected over the line circuit, and by throwing key *G* the telephone circuit may be connected to the subscriber's line. If the substation is of a common battery type, key *F* may be thrown while throwing key *G*, and thus permit a communication with the party operating the common battery telephone;

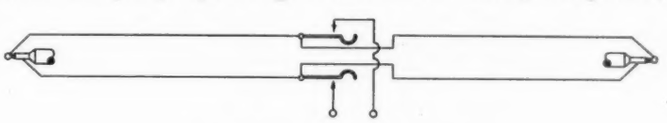


Figure 5—Special Cord Circuit.

and in case it becomes necessary to test the line for insulation and other purposes, key *A* is thrown. This operation, it will be observed, connects the plug circuit direct to the test bus bars, and, as will be explained later, these test bars connect to suitable testing apparatus.

We have, however, not yet exhausted the uses of the universal test circuit. For instance, an inspector has been sent out over a line for clearing a cross. Ordinarily a cross would produce a continuous signal with the usual loss of current. In order to provide against this permanent burning of the signal when the test trunk is connected to a crossed line, it is only necessary to manipulate the *E*, *D*, and *B* keys. This will result in the armature of the relay being drawn up and of placing the signal lamp on the back contact of the relay, which produces a condition of no signal until the cross is removed from the line. The moment

this is done the relay armature is released, and in falling back, places current on signal lamp, and in this manner attracts the attention of the wire chief, who has been waiting, in this instance, for an "open" to come in. Now, say the line in trouble shows an "open." In this case, the wire chief would wait for a "cross" to come in, and set his keys accordingly, by manipulating the *E* and *D* keys, which operation places battery on the line through the relay and leaves the signal lamp on the front contact of the

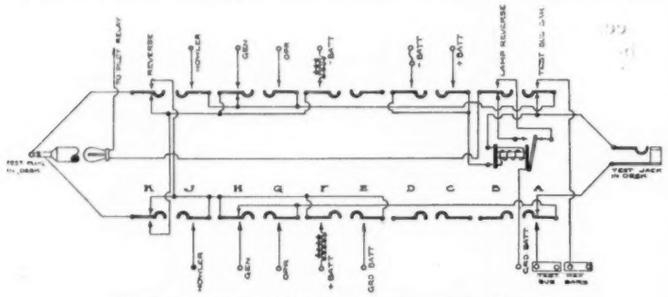


Figure 6—Wire Chief Universal Test Circuit.

relay, so that whenever the line is closed the armature of the relay, being drawn up, lights the signal lamp and gives the required call for attention.

It will further be observed that with this test trunk it is possible to check foreign currents. For instance, one of the line wires has become crossed with an outside source of current. Under these conditions it will only be necessary to manipulate either *D* or *C* key in addition to setting the *B* key, so that when the foreign current is removed the signal lamp will light up owing to the armature of the relay being released. It will also be noted that with several of these trunk circuit at his disposal the wire chief will be able to plug up several outside lines and by means of cord circuits such as is shown in Figure 5 plug the lines together over the test jacks, and can thus connect together two common battery telephones for conversational purposes by a proper manipulation of the switching keys, and is also enabled to supervise the connection by cutting his operator's telephone circuit across the cord connection.

As already stated, this article is not prepared for the purpose of showing how to make calculations for the results obtained while making tests, but rather a discussion of the general requirements of a wire chief desk. Therefore, the writer will conclude with a brief reference to the voltmeter, ammeter and bridge test circuits.

Figure 7 shows a two scale voltmeter complete with an

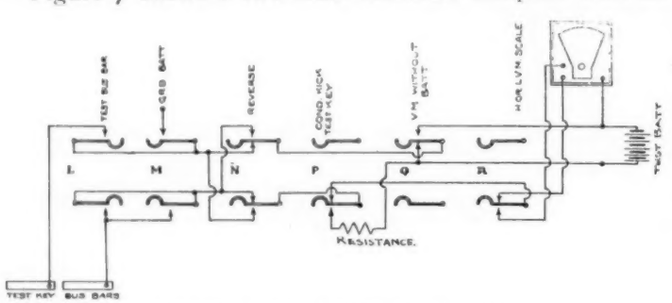


Figure 7—Volt Meter Test Circuit.

equipment of batteries and the necessary switching keys. It will also be observed that the test key bus bars are shown which were referred to in connection with Figure 6. In other words, while the test plug of Figure 6 is in line jack and key *A* is thrown over, then in order to connect the voltmeter to the test circuit, Key *L* of Figure 7 is thrown over. When this has been done, it will be observed that one scale of the voltmeter is connected direct to one of the bus bars, and that the test battery connects to the remaining bus bar. In this manner we have then provided for a metallic test with voltmeter and batteries connected in series. We may select the remaining scale of the voltmeter by operating key *R* or if we desire to make a test without battery, key *Q* is thrown over. This disconnects the battery and connects the voltmeter direct to the bus bar. Obviously, key *R* may now be operated and either the low or high scale connected to the test bars, and with the same circuit, we may reverse key *K*, Figure 6, and take a reversed line reading. Again restoring the voltmeter keys to normal, we may by operating the *M* key ground one side of the test battery and take a reading from this grounded test battery through the voltmeter to either the tip or sleeve sides of the line circuit, depending on the position of the key *K*, in Figure 6. Obviously, if we desire to place the negative side of the battery to earth while making this test, it can be done by operating the *N* key, in addition to operating the *M* key.

There is one more test which is of considerable importance, namely, when *Q* has been thrown, say for connecting voltmeter direct to the line, then key *P* may be thrown, and through it, by placing battery on the line, charge whatever apparatus on the line circuit may be susceptible of a charge, and, upon allowing the key to return, a discharge will be obtained from the line through the voltmeter. Obviously, whatever type of voltmeter is used will determine the relative connections of the circuits.

Figure 8 shows the ammeter and the Wheatstone bridge connections. We have the test key bus bars so arranged

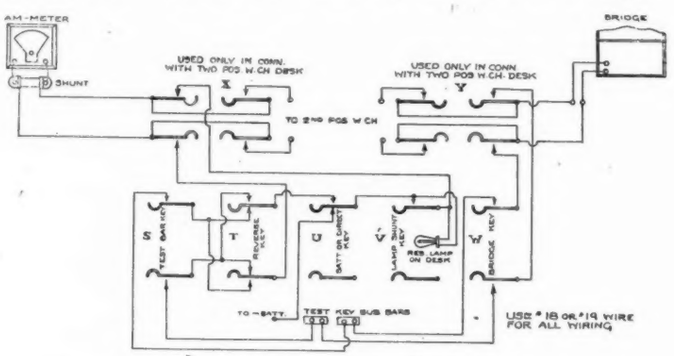


Figure 8—Am-meter and Wheatstone Bridge Test Circuit.

that one bridge and one ammeter may be used by either of two wire chiefs, the *X* key being used for connecting the ammeter to either one position or the other, while the *Y* key is used for connecting the bridge to one or the other positions. The *S* key is used for connecting the ammeter circuits to the bus bars, and key *W* connects the bridge to the bus bars. Key *T* is simply a reversing key between the ammeter and the bus bars, while key *U* is so arranged that a test may be made direct to a line circuit without local battery flowing through the ammeter. Key *V*, in connection with its resistance lamp, is provided for the purpose of giving a visual signal should the amount of current flowing from the local battery through the ammeter exceed a certain predetermined amount, the lamp flashing as a danger signal before damaging the ammeter needle adjustment. Of course, to make an accurate test the key *V* must be operated so as to shunt the lamp out of circuit.

WEST VIRGINIA INDEPENDENTS.

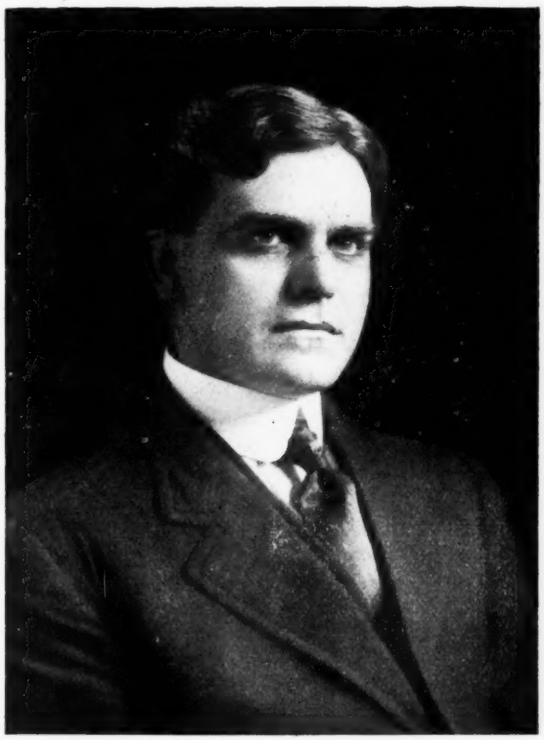
The executive committee of the West Virginia Independent Telephone Association will meet at Parkersburg in April to arrange for the state convention, which will be held at Wheeling, May 9 and 10. It is proposed to make the 1908 convention the greatest event in the history of the West Virginia association, and a large attendance is expected. The executive committee consists of Alonzo Hutchinson, Huntington; A. C. Davis, Parkersburg; J. W. Barnes, Fairmont; H. A. Hartford, Charleston, and W. C. Handlan, Wheeling.

GETTING BUSINESS

Abstract of a Paper read before the Michigan State Telephone Convention at Coldwater.

By Charles H. Hood

NONE of us is a stranger to the topic assigned me, "Getting Business." It is one that has caused us much worry and many troublesome times in the past. My view may be optimistic, but I see a brighter future before us. It is rather a difficult task, when I come to look it over, to tell you how to get business, after you have accomplished so much. The telephone business is a business that is disagreeable at times, but it is fascinating. It is a business where you deal with the classes and the masses; you solicit every known business and residence on the globe. I find only five per cent of the salesmen that apply for positions as solicitors that can sell telephones. A successful solicitor must have backbone, and a great many have a wish-bone where the backbone ought to be. The solicitor must be energetic, have tact, be a student of human nature and understand the subject thoroughly, and in this connection I want to say that to keep in touch with the times and up to date, it is imperative that every solicitor and every employe of a telephone company or corporation should subscribe for one or more good telephone magazines. This advice is not directed to the practical men for I cannot recall one that does not subscribe. The best solicitors we have ever employed have been devoted to their magazines. In no other way can a man or woman, in practical work, keep in touch with the rapidly advancing ideas of telephony. All of our solicitors in Detroit are subscribers to telephone magazines. I know that it helps them in getting business, for in this line of work it is necessary to talk to get results and you cannot secure satisfactory results unless you are posted in every detail of the business you represent.



Charles H. Hood.

I do not make this statement to boost the publishers, but I honestly believe that it adds a vast amount of ginger and ambition and I know that if every stockholder in a telephone property read a telephone journal he would be a better worker.

Every company should exercise great care in selecting employes that are liable to meet and come into contact with the subscribers. They should be uniformly courteous and carry out their instructions in a pleasant and agreeable manner.

Employers often spend thousands of dollars to influence the public in taking their service and are losing them through some other channel. A discourteous employe should never be tolerated. I admit there are times when we come close to the precipice but it does us no good to go over and it may hurt. I believe that every complaint should receive a personal call. A satisfied subscriber is a big asset to us and a large liability to our opponent. Harmony between the company and the public will bring great results. There are many methods of "getting business" but they are all subservient to a good solicitor. Judicious advertising is a great help to the canvasser but with all the advertising we have done few came to the office to sign for a telephone. Still be believe in advertising. Our large billboard advertisements in Detroit read: "Agent will call, subscribe with him and 'Look for the Shield.'"

I will cite a few methods used in our recent canvass in Detroit which has secured us 10,173 contracts up to and including yesterday. Each contract is verified by mail and by a personal call. In the first place we educate men in the art of selling telephones for we realize an inexperienced man will spoil twice as many as he will secure. We familiarize them with the local condition from the incorporation of the Michigan (Bell) Company in 1883 to date and there is considerable local history in Detroit as you all know.

When we began our campaign for subscribers the city was laid out in 21 districts and a man assigned to each district and a thorough canvass made from business to business and from house to house. This first canvass secured us 3,386 contracts.

We changed all of the men to new districts and had them turn over all prospects to the succeeding solicitor in that territory who received a book form of reports covering that district.

We called all of the men off the field and gave each one a certain class to call on such as clergymen, physicians, attorneys, contractors, druggists, grocers, etc.

We gave each man a number of streets and a list of the parties that had signed on these particular streets.

We turned all solicitors loose, go as you please, for a couple of weeks. The plan is capable of bringing in a great amount of business for a short time, but if persisted in, will discourage the solicitor and the subscriber.

I could go further in regard to the Detroit canvass, and many others, but I do not wish to go into too much detail. With an operating company there are more and varied methods in "getting business" but different conditions and districts require different methods and I hope to go into this more fully at some future time.

To show that we have your interests as well as ours in mind, we compile from our long-distance tickets lists of lost calls and calls to those who have not subscribed for Independent service and use every effort to induce them to subscribe. I earnestly wish that the companies that are safely entrenched and enjoying quarterly dividends would take a friendlier interest and boost the smaller companies. They could do this by building three-quarters of the way

the small company building one-quarter. This is generally done or we would not have the magnificent system that we have, but it is human to forget when success is coming our way.

A prospective subscriber or what we term a prospect is one who can afford a telephone and has none. This prospect is followed up until the man leaves the city, dies or signs for a telephone. Tuesdays and Thursdays of each week we have a solicitors' meeting.

At these meetings we discuss Bell methods and rates, the inadvisability of knocking your opponent, except as a matter of protection, merits of one system over another, class of service, equipment, composite circuits, etc. These meetings are beneficial to the men and to the company. It is a good plan to keep in touch with the solicitors personally and have each man make his report in presence of the others. A little encouragement spurs solicitors to greater effort and promotes rivalry for the best results. Solicitors to be successful must be kept enthused. We instruct our men to study the requirements of subscribers and not to induce anyone to take service which their business will not warrant or they cannot afford. It is a good idea for the contract agent in charge to canvass occasionally in the different districts to keep in touch with the people and their wants and in this way know the conditions that have to be met by the men. The contract agent should cultivate the friendship of the press, should belong to the business men's association and most of the social clubs, for in no better way can he come in personal contact with the heads of the larger concerns with whom it is necessary sooner or later to adjust some matter of importance. To be successful, in "getting business," be thorough, be persistent. Of all the positive qualities of success persistency ranks the highest, for no real success has ever been attained without it. There is no successful business that was not built by persistency. Persistence has been the slogan of the Independents and see what they have accomplished.

Josh Billings expressed a very good thought in his advice to his son, which was "Konsider the postage stamp, my son; its usefulness konsists in its ability to stick to one thing until it gets there." Persistency acquires all things. I intended to hang up the receiver at this point, but before I do I will repeat a few lines which I read recently:

"Genius that power that dazzles mortal eyes is oft but perseverance in disguise;
Continuous effort of itself implies, in spite of countless falls, the power to rise;
'Twixt failure and success, the point's so fine men sometimes know not when they touch the line;
Just where the pearl was waiting one more plunge? How many a struggler has thrown up the sponge?
As the tide goes clear out, so it comes clear in, in business 'tis at times the wisest win,
And oh! how true when clouds of doubt dismay, 'tis often darkest just before the day!
A little more persistence, courage, vim, success will dawn o'er fortune's golden rim,
Then take the honey for your bitterest cup, there is no failure, save in giving up;
No real fall as long as one still tries, for seeming setbacks make the strong man wise;
There's no defeat in truth, save from within; unless you are beaten there, you're bound to win."

DECISIONS AFFECTING TELEPHONY

By Gilbert W. Hand

ADDITIONAL SERVITUDE IN PENNSYLVANIA.

THE rule in this state has recently been declared by the superior court. The Bell Telephone Company of Philadelphia was engaged in the erection of certain poles and wires in city and borough streets under charter rights, with municipal consent, and was conforming to the municipal regulations. One Shinzel brought suit against the company, claiming compensation for the damage to the fee in the lands occasioned by the erection of poles and wires. It was held by the above court that such use under these circumstances was not an *additional burden* for which Shinzel could recover compensation.

Shinzel v. Bell Telephone Company, of Philadelphia, 31 Penn. Superior Court, 221.

LINEMAN INJURED BY ELECTRIC LIGHT WIRE NEAR POLE—CONTRIBUTORY NEGLIGENCE QUESTION FOR JURY.

A good case setting forth the duties of electric companies to place their wires a sufficient distance from telephone poles upon which linesmen may ascend and descend in the performance of their duties has recently been decided by the Maryland court of appeals. The facts were as follows: Robert Ziehn was employed on July 31, 1902, by the Maryland Telephone Company as a lineman to test the lines and answer "trouble calls." On this date he received a call to go to Pikesville to locate and ascertain "a trouble." When he reached the place he found it necessary, in order to locate the difficulty, to ascend what is called the distributing pole, the cable box being at the top. In going up he had to pass three electric wires of the United Electric Light & Power Company, of Baltimore, in close proximity to the pole and somewhat lower than the cable box. The first wire was three inches, the second twenty-five inches, and the third fifty inches from the pole. He ascended without injury. In descending his left hand came in contact with one of the heavily charged wires, from the shock of which he was rendered unconscious, resulting in a fall to the ground and severe injuries. Ziehn said with reference to the way the accident happened: "I was coming down and had my left hand on the step and was to lower myself to get on the step below, and as I took my hand off, the wire swung either by the wind or the repair car coming down the wire. The car got these wires vibrating and they struck me, and I remember no more." There was also some evidence that the wires of the electric company were not properly insulated. The above constituted the principal facts in the case on which the court held that it was for the jury to determine whether the injured person was guilty of contributory negligence, saying, "The plaintiff in this case was in the exercise of a duty that required him to ascend and descend the distributing pole. The electric company owed him a clear, legal duty to have its wires so placed and insulated as to permit him to perform his work without injury."

Ziehn vs. United Electric Light & Power Company of Baltimore, 64 Atlantic, 62.

NEGLIGENCE—INJURIES FROM ELECTRICITY FROM SAGGING WIRES.

In an electric street railway case the facts were that across certain vacant property owned by one Hubinger, the company had strung certain heavily charged wires. The

wires in general were insulated. One Connell, a boy 14 years of age, was playing on this unenclosed place, and in some way came in contact with the company's wire where it had been allowed to sag, and where the insulation had been worn off, apparently by being in contact with the trees. The boy was instantly killed. On these facts the supreme court of Iowa made the following statement of law with reference to the liability of the company: "There was evidence that persons were in the habit of going across Hubinger's property near the place where defendant allowed its wire to sag in such a way that the safety of persons was imperiled. We do not think that the question that such persons were, as to Hubinger, trespassers on the one hand, or were rightfully on Hubinger's premises on the other, was conclusive as to defendant's liability. The controlling consideration in determining defendant's liability is whether defendant was reasonably chargeable with knowledge that persons who were likely to come in contact with its dangerous wires might, in the exercise of reasonable care, have avoided such danger." There was some evidence that defendant knew of the condition of the wire, and the court said that the matter was therefore for the jury to determine as to the negligence of the company.

Connell v. Keokuk Electric Railway & Power Company, 109 N. W., 177.

SPECIFIC PERFORMANCE OF VERBAL CONTRACT TO FURNISH TELEPHONE SERVICE.

An Illinois case is authority for the following rule of law with reference to the above proposition: "A verbal contract to furnish service at a specified rate which is within the state of frauds will not be sufficiently enforced, notwithstanding it appears, that in consideration of such agreement, the complainant had rendered services and had made a contribution in connection with the establishment of the telephone system."

Quinn v. Stark County Telephone Company, 122 Ill. App., 133.

DOES AN ELECTRICIAN ASSUME THE RISKS OF ELECTRIC CURRENTS FROM CROSSING WIRES?

The answer to this question is suggested by a recent case decided in the Illinois courts. An engineer was in charge of certain machinery in an electrical plant and was killed by the shock of a powerful current of electricity conveyed into his place of employment over certain wires which were not intended to carry any current. The electricity which caused his death came over these wires through their crossing outside the building with heavily charged wires. The question of law arose whether such a condition was one ordinary, usual and incident to such employments. The court held that it was not; that the engineer did not assume such risks.

Belvidere Gas & Electric Company v. Boyer, 122 Ill. App., 166.

FOREMAN PAID TO NOTIFY LINEMAN OF THE TIME ELECTRICITY WAS TURNED ON—LIABILITY THEREFOR.

An interesting case decided by the court of appeals of Kentucky, in which the following named company was the defendant, sets forth the law so clearly on this proposition as to warrant the quotation of a considerable portion of the opinion. "Lafe Carmine was a lineman in the employ of the East Tennessee Telephone Company. It has a telephone pole about 45 feet high on one of the streets of Paris, Kentucky. On this pole, in addition to the telephone wires, were those of the Paris Electric Light Company, which carried 1,100 volts of electricity. Shortly after four o'clock in the afternoon of September 30, 1902, Carmine was sent up the pole by his foreman to do some work. He was then directed by the foreman to take up a wire of the electric light company, which was hanging down, and had caused trouble to the telephone and telegraph wires the night before. The electric light company had no power upon its wires during the day. It had been turning the power on about five o'clock in the afternoon. A day or two before the trouble the electric light company notified the telephone company that thereafter the power would be turned on about four o'clock. When Carmine took hold of the wire that was hanging down the power had not been turned on. While he was coiling it up to get it out of the way the power was turned on and he received a shock which threw him to the ground and from which he sustained permanent injuries. He sued both companies and recovered judgment against the telephone company for $1,500. From this judgment it appeals. Carmine testified that he had no notice that the electric light power would be turned on before five o'clock and his statements as to what occurred between him and the foreman are confirmed by several other witnesses. The foreman testified that he told him to be careful, that the electric light power would soon be turned on, and his statement is confirmed by other witnesses. The evidence is pretty evenly balanced and we are not prepared to say that the jury were not warranted in accepting Carmine's version of what occurred. But, waiving this, in view of the fact that it was after four o'clock and that the foreman knew that the electric light power was to be turned on about five o'clock, his own version of what he said to Carmine shows that he was guilty of gross negligence in the premises, for he should, knowing the danger, have explicitly warned Carmine, and not left him in uncertainty, as his own statement shows he did. He could not but know that there would be danger in handling this broken wire after the electric power was turned on, and he knew that it was liable to be turned on at any second. We cannot, therefore, disturb the verdict upon the facts. The plaintiff had a right to sue jointly the electric light company and the telephone company." See Cumberland Telephone Company v. Ware's Admr., 115 Ky., 581.

East Tennessee Telephone Company v. Carmine, 93 S. W., 703.

CONDEMNATION PROCEEDINGS IN NEW YORK—SUFFICIENCY OF PETITION.

Some time ago the Bell Telephone Company of Buffalo sought to condemn certain property in this state for the purpose of erecting certain lines of poles and wires. The petition asked for authority to do certain acts, ending with a request for "the right to trim such trees as may be necessary to protect said line from interference; with the right to attach the necessary wires and cables thereto; said poles to be located at the places indicated in the annexed map, which is here referred to and made part of this petition." Certain owners of property along which the line was to run objected to the proceeding, particularly for the reason that the petition did not set forth the extent to which the company desired to trim the trees. The condemnation statute provides that the petition shall contain "a specific description of the property to be condemned." The court of appeals said that this statement of the company with reference to the trimming of trees was not sufficiently explicit. From this decision it is clear that in New York petitions for the right by condemnation proceedings to trim trees or lay out new lines of telephone must explicitly state the proposed work to be done with such clearness as to leave no doubt of the extent of the proposed acts.

Bell Telephone Company of Buffalo v. Parker et al, 79 N. E., 1008.

The telephone is not the lazy man's friend; it is the friend and most valuable aid of the busy business man. Its use is not to save work altogether, but to facilitate it, and its value in this respect in any community depends on the number of people using it.

IOWA INDEPENDENT CONVENTION

Three Days Meeting of State Association Held at Sioux City, March 19, 20 and 21.

By W. H. Graffis

THE eleventh annual convention of the Iowa Independent Telephone Association was held at the Garretson Hotel, Sioux City, on March 19, 20 and 21, 1907, and proved eminently successful in every particular. The convention was called to order Tuesday afternoon, March 19, by President P. C. Holdoegel, who appointed as a committee on credentials Chas. G. Cockerill, of Sioux City; O. A. Repass, of Dallas Center, and C. A. Peterson, of Manchester. A committee to audit the accounts of the secretary and treasurer was also named, consisting of J. S. Bellamy, of Knoxville; J. C. Thorne, of Fairfield, and S. S. Lichty, of Vinton.

Delegates to the Iowa Independent Telephone Convention at Sioux City, Iowa, March 19, 20 and 21, 1907. J. B. Hoge, P. C. Holdoegel and George T. Hewes Seated in the Foreground.

President Holdoegel then made his annual address to the convention, which follows:

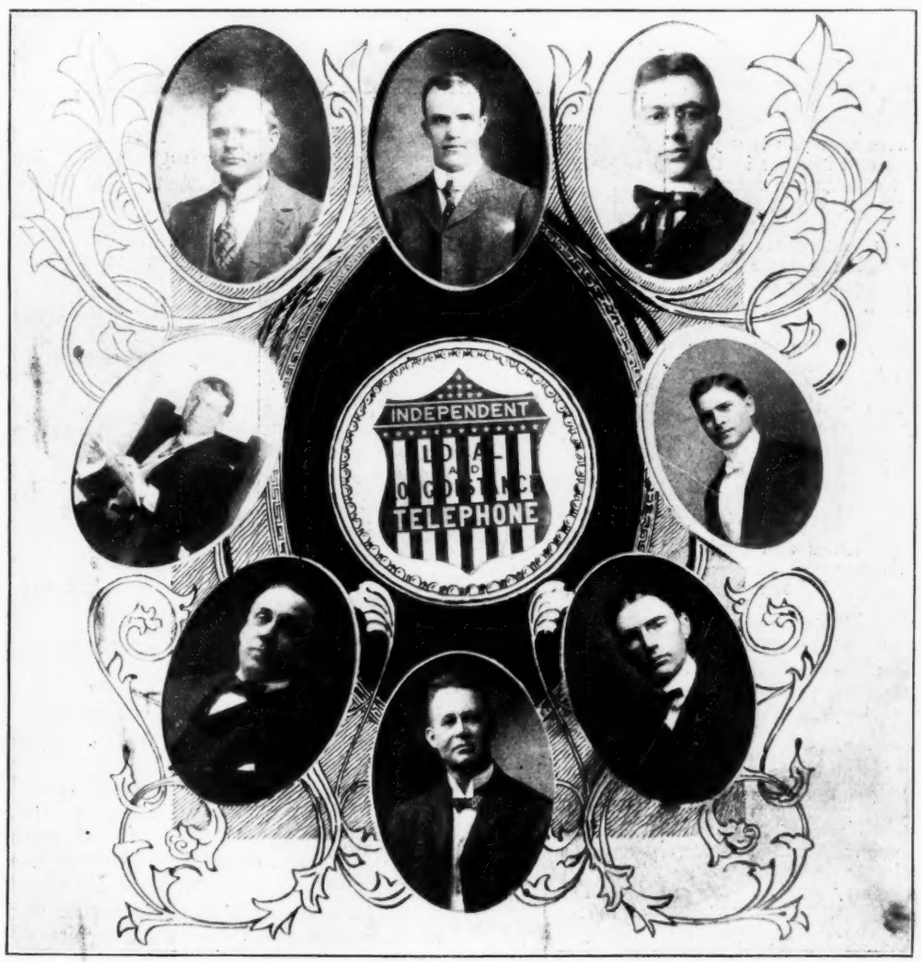
Gentlemen of the Convention:—Under the existing circumstances, with the opportunities that have been presented us for work during the last year, it would seem that the president's address might be likened unto a cat's tail—long and fur to the end. It is desired by the president, however, that it might be like a rat's tail—smooth, tapering, and coming to a point. But under the existing conditions, owing to the condition of the president's voice and throat this afternoon, and the program that follows, I think you will find it possibly closely resembling a rabbit's tail—merely a suggestion.

We might appear before you this afternoon somewhat in the spirit of apology—not for lack of interest in the work of the association nor for lack of enthusiasm in the desire to achieve the results that it is the purpose of this organization to attain, but for lack of results accomplished as compared to the opportunities that have been presented to the association during the past year. A year ago we launched our association under a new constitution, with district organizations to form, sub-districts to organize and county captains to appoint; with the entire machinery of the association to be placed upon a new working basis; with the opportunity to push our organization into every corner of the state, and through the corners into every county. This work, as you men will know in looking it over, has required time to get the organization moving, has required effort on the part of men in every section of the state, and has required a great deal of application on the part of the different members of the association. We wish we might report today that every corner of the state has been fully covered by the work of the association. We are glad that we are able to report that most of the corners of this state have been reached, that the membership has been increased, and that enthusiasm has been worked into the organization, and that we believe our members are now ready to begin the work in the interest of the Independent Telephone Association of Iowa.

A year ago we found ourselves confronting a condition that we had not met prior to that time, in the supreme activity of the monopoly against which it is our organization's purpose to work. Never, I believe, in the history of Iowa, have the opposition been so active as during the past year, and I believe that there has been no time during that year when they have been so active as at the present time. We found in portions of the state not only the effect of money thrown into their campaigns, not only the effect of cut rates in the towns and cities, not only the effect of superior toll line connections, but we found the effect of skilled solicitors and organizers working among the Independents and among the farm-

ing communities, attempting to persuade those who were previously connected with the Independents, or who were about to connect with Independent lines, to affiliate themselves with and strengthen the position of the Iowa Bell telephone company. Perhaps you may not all be aware of the efforts that have been put forth in the interest of that company, but I assure you that those who have been in touch with this work realize that there has been a supreme effort on the part of the opposition, and more especially in and about the commercial centers, where their own interests have been most imperiled. They found at the beginning of this year a new activity among the Independents. They found an activity that was extending the exchanges, that was improving the Independents' toll line service, that was cutting into their toll line receipts, and an organization confronting them that, as they saw it, it was necessary to meet with a supreme effort. And, as previously stated, I believe that at this time there is greater activity than there has been at any time in the year past on the part of the opposition, to create dissension among the Independents—more especially around those centers that have been recently captured by the Independents, or at least in which we have gained a fighting show.

There are yet remaining in Iowa two county seats not reached by Independent lines. A year or two ago there were many places not reached by them. With proper management of this association's affairs, with the proper spirit of enthusiasm, and with investment backing it, if necessary, we believe that within a short time the Independents may reach every town in the state of Iowa; and we trust that this may be accomplished by your organization during the coming year. I believe the effect of this supreme effort on the part of our opposition has been to create a renewed vigor in the work among ourselves. I believe there are those in this association who were not, prior to this year, awake to the possibilities of work in our organization and to the possibilities of the results that may be accomplished by a united effort. We send our boys to college, and the first thing they desire to do is to get into the athletic field. A boy goes into the base-ball nine, and he may be an expert twirler of the sphere, he may be graceful behind the bat and a master of the stick; and yet the first thing he finds is that without the support of the other eight members of the team, or unless he is supporting the eight members of the team, his work is of very small account. You put him upon the gridiron, and he finds that when he picks up the pigskin and starts out with it for a run, unless he has the support of the remainder of the eleven his effort is futile. And it is our hope that if there is no other result accomplished in this convention, we may go out with the fact thoroughly impressed upon our minds that it is necessary in the Independent telephone association to do vigorous, hearty team work. The results of this work have been shown in the last year in many localities, and if we can create an enthusiasm in this convention that will carry with it a united action in the counties where that united action is necessary—carry with it the support of not only those counties' particular companies, but of every surrounding company, and, if necessary, the support of this entire association—this convention to-day will not have met in vain.



Members of the Iowa Independent Telephone Clearing House.
P. C. Holdoegel. C. C. Deering, President. J. M. Plaister, Secretary
Charles G. Cockerill. E. H. Martin.
J. C. Thorne. George T. Hewes, Manager. F. C. Musson.

During the last year we have accomplished some work. We have organized the districts, as previously stated and we have increased the membership; we have aimed to champion the cause of Independent telephony everywhere, not limiting it to the state of Iowa, but giving our support to the International Independent Telephone Association. We have built up one institution that is bringing about large results in our toll service. I refer to the Independent telephone clearing house. While the clearing house is an entirely separate organization, though composed of stockholders who are holders in Independent telephone plants, yet it has worked these Independent toll line holders into such a community of action that it is now possible, throughout the larger part of the state, for the public to ask for telephone service and receive it in such a manner as was not possible prior to the organization of this institution. Two years ago, when a gentleman stepped into the telephone office in Sioux City and asked for a connection with Des Moines, it was impossible to obtain that connection. It might possibly be put through, provided the lines down the road were not loaded at that time with their owners' business, but if those lines were busy or were carrying a load of business, those owners said: "It must take my business first, because I do not get anything, or I do not know what I will get, from the business that comes from other lines." Under the clearing house they are now relieved of that uncertainty, and know that when another company's message is handled over their wires they will receive their just compensation.

There have been letters published from different parts of the state, showing the effect of the clearing house on toll line business, and those of us who have studied this matter believe that the clearing house and the principles underlying it are largely responsible for the increased toll facilities and for the growth of telephone business. It simply brings about the principle of a square deal in handling toll line business. The association, I am glad to say, has stood by this institution. It is not a part of the association, but our members have supported it in such a manner that it has been able to bring about these results.

This year the association has provided funds such as have not been provided before. It has put into the field a state agent, who has been available at all times and in all places in cases of dissension and difficulty, and he will submit to you during this convention a report of his work. I desire to speak somewhat of the results of this work. It has been my personal opportunity to be on the field with Mr. Hollis in some of his warmest fights, and I am frank to say that I am personally sure—and the owners of the Independent lines where he was at work have given us definite assurance—that without his assistance the results might have been very different and disastrous to the Independent movement.

While we have accomplished much during the last year, it is evident that we have yet more before us. It is desired that we shall have a closer and more complete organization. We wish we might reach into every county with a close organization that will include every owner of Independent telephone lines and exchanges within this state. May it not be so? Is our purpose wholly a financial one?

I beg of you to consider the fact that only a few years ago it was impossible for the rural communities to have telephones. The Independent movement has made it possible for us to get them in our homes and for the farmers to have them in their farm houses; and this has been wholly through the efforts of those interested in Independent telephony. Is this effort worth while? May I ask you what is more worth while than to bring these conveniences to the outposts of our rural communities and enable them to receive benefits such as they might not have received had it not been for the Independent interests?

We desire during the next year to increase our membership. The finances of the association have been somewhat limited, even under our assessment plan, because of the fact that there were a large number of companies in the state that have not been members, who have not been paying their assessments, and who have never paid their initiation fee. May we not during the coming year bring these companies into the association? May we not have the benefit of their help? May we not give them the benefit of our help, and present a solid front in the interests of the cause which it is our purpose to champion? I would like to impress upon you the necessity of individual work in this cause. Have you not those near you, operating Independent lines, who are not members of this association and are not contributing to its support? Kindly take just a moment to think of your immediate community and your immediate district. Who is there near you that you can individually interview and interest in this association, and induce to become a member of it? If all the Independent telephone companies of Iowa were in this association and paying their pro rata assessments, there would be no difficulty about keeping a state agent in the field and keeping a secretary or assistant secretary on a salary, which is one of the necessities of this association in order to accomplish its greatest good. There would be no difficulty in having a publicity bureau through which we would be able to carry our campaign of education into all the communities of the state. May not the members of this association make an individual effort to increase this membership?

Howard S. Baker, President and General Manager of the Sioux City Telephone Company and Chairman of Committee on Arrangements for Iowa Convention.

When we talk of our assessments we find that just across the river, in Nebraska, we have an association coming up with all the Independent telephone companies and paying an assessment of ten cents per unit. In Iowa during the last year we have levied two assessments of one cent each per unit, and have been trying with the receipts from those to carry on the work of the association as it might best be done. I am frank to tell you, as I did in the opening, that we have been hampered in the work of the association for lack of funds. By a supreme effort we have been able to keep our state agent in the field, we have been able to do something in the line of publicity, we have been able to carry on the work of the association after a fashion; but in no such manner as it might have been carried on, or with the results that might have been attained had we had at our command the funds necessary to carry on the work which the officers of the association deemed advisable. Whomsoever you may place in authority for the next year, I would like to bespeak for them the united effort of this association, a united support in the line of assessment, and a united line of work for the increase of membership, in order that there may be a larger amount of money available to carry on the work of the association. If the members already in this association would step up as a unit and pay an assessment equal to half that paid by our sister state across the river, the association would be in a much better working condi tion.

I would like to impress another point upon the members, and that is the desirability of close organization and hard work in our district association. I believe the salvation of Independent telephony in Iowa lies in the closer organization and the effective work of our district associations. It is impossible for a state organization to have its fingers on the movements of our arch-enemy in every locality of the state, but it is possible through the district organizations for the different presidents and captains to be clearly in touch with such matters; and then, with funds sufficient to support a central office bureau of information and general correspondence, it would be possible to bring the united influence of this association to bear upon any corner of the state when it might be desired.

As I promised you in the beginning, gentlemen, this address is very much in the nature of a rabbit's tail—merely a suggestion. I would like to urge upon the members here the solemnity with which we must consider these points if we would desire to have this organization accomplish all that it can accomplish. What we need most during the next year is: First, close, effective district organization; second, a very much larger membership in the state association; third, a larger fund for carrying on the work of the association; fourth, a larger number of employes of this association. It is almost impossible at the present time, without imposing very heavily upon the time of your secretary, whoever he may be, to carry on the work of the association as it should be carried on. If the secretary's office were to do the work that the president might suggest for it to do, I believe it would require the constant work of a stenographer; and a competent man as an assistant to the secretary would work out most excellent results for this association if he did nothing but look after the organization in the different parts of the state, while a man in this location might perhaps as well be a technical man, who might be of assistance in other ways.

The papers of F. McNally of Carroll on the subject, "Is it Advisable to Appoint a State Toll Line Inspector?" and of W. J. Stanton, Waterloo, on "The Necessary Standardization of Clearing House Toll Lines and Equipment," being on allied topics, were discussed together. J. H. Shoemaker, of Waterloo, advocated the appointment of a toll line inspector, it being his view that such a person would be able speedily to settle disagreements between different companies as to the location of the trouble on the line which caused poor service.

Roy Walker, of Des Moines, opposed such appointment, declaring that a state toll line inspector would be a supernumerary, and that the engineering forces of the companies doing the most of the toll line business should be able and willing to make the necessary examination to discover the location of the cause of the faulty service. In regard to standardization, Mr. Walker said that the root of the whole matter was to be found in the establishment of a unit of talking efficiency. He moved the appointment of a committee by the president whose duty it shall be to prepare a standard specification of all materials to be used and a standard plan of construction detail. At the suggestion of Mr. Stanton, a specification of circuit construction was included in the motion. H. A. Douglas spoke in favor of the motion. J. S. Bellamy, of Knoxville, urged caution in proceeding in the matter without full consideration, and moved the reference of Mr. Walker's motion to a committee consisting of Messrs. McNally, Stanton, Walker and Douglas, who should report to the convention at its next session a rule for the appointment of such a committee and defining its duties. Mr. Bellamy's motion carried.

Mr. Bellamy moved the appointment by the president of a committee of three, not members of the clearing house, to co-operate with the traffic committee of that organization and report to the convention a rule governing the message rate and the commissions to be paid to local exchanges. The motion carried, and the president appointed as such committee: E. E. England, of Mt. Pleasant; C. A. Hollis, of Hudson, and Harold L. Beyer, of Grinnell.

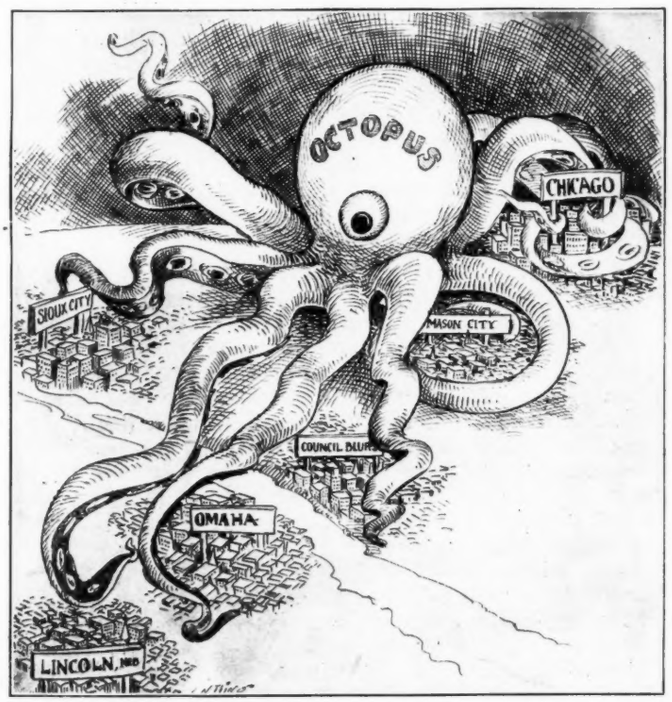
Upon motion of J. H. Shoemaker the president appointed a committee consisting of Messrs. Shoemaker, E. H. Martin, of Webster City, and H. A. Douglas, of Cedar Rapids, to prepare an amendment to Article VII of the constitution providing for the reinstatement of members of the association who have lapsed in the payment of dues and assessments, upon the payment of all such delinquent accounts. The report of the committee embodying such amendment was adopted by the convention upon presentation later in the session.

A special executive session was held on Tuesday even-

ing, at which the legislative committee of the association made its report, and an informal discussion of pending legislation was had.

WEDNESDAY SESSION.

At the opening of the Wednesday morning session Mayor W. G. Sears, of Sioux City, welcomed the delegates in a characteristic address. The remainder of the time before



The Octopus Releasing Its Grasp—One of the Pictures in the Iowa Convention Lecture, "A Fight with An Octopus."

the noon adjournment was taken up by an experience meeting. R. J. Hart, of Minneapolis, presented some figures covering the growth of the Tri-State Telephone Company, and also gave an interesting account of the work of the Independents in North Dakota. R. E. Mattison, manager of the Telephone Traffic Association of Nebraska, outlined the work accomplished in that state, not the least important item of which is the compiling and printing of a state telephone directory. Judge C. B. Kennedy, president of the South Dakota association, opened his remarks with a highly complimentary reference to the state of Iowa, its people and their accomplishments, but when he admitted that he had been reared in Iowa the secret was out. Judge Kennedy gave a most interesting account of the struggles of the Independents in South Dakota, and the absolute necessity of their entering into a contract with the Northwestern Bell in order to obtain toll service to the east, owing to the peculiar conditions of the local lines. He made a strong plea for recognition as an Independent, notwithstanding the apparent inconsistency of such a business arrangement, and declared that the Independents of South Dakota were no less loyal to the cause because of having secured an outlet for toll business in the only way afforded them.

State Agent Hollis, of Iowa, presented his report for the past year. During the period of his incumbency he stated that he had met ninety-eight companies, some of them several times. He reports each day to the president, who is thus in constant touch with him. His earnest endeavor is to promote the "square deal" between the companies with whom he works. In regard to toll service, he stated it to be his belief that the principal difficulty lay in not having enough circuits, and that no No. 10 copper lines should be connected between any towns less than fifty miles distant—at least, he said, No. 9 iron wire will do the work just as well at less expense.

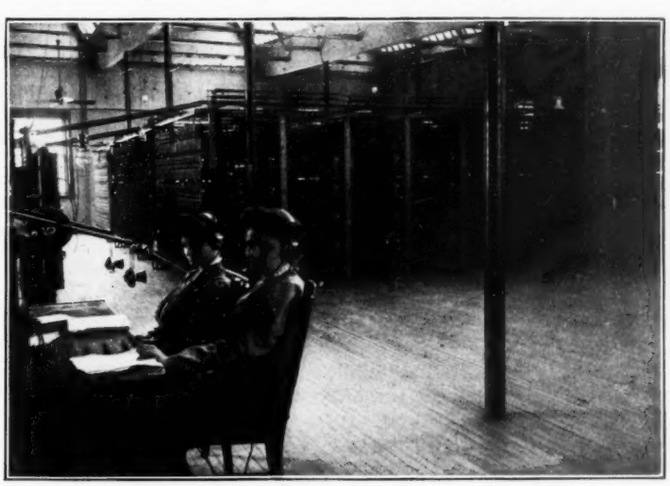
President James B. Hoge, of the International Independent Telephone Association, delivered an address on the work of the association in which he outlined the progress of Independent telephony over the country, showing a most encouraging growth and development in all directions. The committee appointed to act with the traffic committee of the clearing house on the matter of toll rates in Iowa presented its report in the form of the following resolution:

"Resolved, That no change in toll rates be made at the present time, and that the president be and he is hereby authorized and instructed to appoint a permanent committee of five to investigate and further the matter of rates, with full power to act in the making or changing of the same."

The motion to adopt the resolution was discussed quite fully by J. S. Bellamy and others, and was finally carried.

Wednesday afternoon was devoted chiefly to the discussion of questions pertaining to the farmers' companies. C. A. Hollis, state agent of the association, presided at the president's request. Dr. E. W. Haradon, of Jesup, Iowa, opened the discussion, calling attention to the change in the public's impression of the farmer, as shown by the work of the cartoonists. Formerly the Iowa farmer was pictured as long, lank, lean and hungry looking, with one suspender, long hair and whiskers, a straw in his mouth and hayseed in his hair; while to-day he appears to be a very robust, fine looking individual, driving a fine team of horses which a city man would be proud to own. This change of public opinion, said Dr. Haradon, applies equally to the farmers' telephone companies. He urged upon the farmers' companies the need of system in the management of their business. It is important to have a good manager, and a cheap trouble man is a very poor investment. Every dollar spent in advertising will bring in ten in business—not before eight o'clock to-morrow morning, but surprisingly soon.

W. M. Crownover, of Hudson, spoke on the topic: "Should all Independent Companies, Mutual or Commercial, Co-operate, and Why?" No doubt was left in the minds of Mr. Crownovers' auditors as to his position in this matter. Telephone service is not valued by the number of miles of wire available, he pointed out, but by the number of patrons in the immediate vicinity of each other



Automatic Switchboard of the Sioux City (Iowa) Telephone Company.

who have the same switching connections. Without co-operation we would be dependent upon a monopoly for our service.

The topic, "Is the Fair Exchange Plan, as used by the Black Hawk Association, More Profitable to the Farmers' Company than Free Exchange, in Point of Service, Finance and Otherwise?" was handled by Dr. G. A. Evenson, of Finchford. Fair exchange is equal or proportionate division of tolls for messages transmitted over two or more

companies' lines between or among said companies. Free exchange is talking from one exchange to another without paying a direct toll, although an indirect toll is paid in the form of assessments which are made to meet expenses. Every telephone company must have an income, and the same expenses are incurred whether operating under the so-called "free" exchange or under the fair exchange plan. A well-equipped exchange, which is always possible under the fair exchange plan, without the necessity of begging for money from its patrons, will give the best satisfaction in the long run, and those who have had experience with both plans have no hesitancy in urging upon any Independent company, large or small, the superiority of fair exchange.

C. G. Blasier, of Greene, presented a paper on "Better Toll-Line Service," in which he advocated the discontinuance of all grounded toll lines and the substitution of copper circuits, with an increased number in congested districts. Various questions of interest to the farmers were propounded by the chairman and discussed informally, to the pleasure and edification of those present.

President Holdoegel then resumed the chair and called for the report of the committee on standardization of toll lines and equipment. Chairman Baker presented the report, which recommended the appointment by the president of a standing committee of three on standardization of equipment, whose duties shall be to compile an intelligent and practical set of rules, adopting as a basis such standard authorities as they may consider proper; said committee to be empowered to publish the same in book form, at the expense of the association, to be sold to members of the association or other interested companies at not to exceed fifty per cent above cost; all of said work to be under the supervision of the executive committee. Upon motion the report was adopted. President Holdoegel later announced as such committee: Roy Walker, of Des Moines; W. J. Stanton, of Waterloo, and H. A. Douglas, of Cedar Rapids.

THURSDAY SESSION.

President Holdoegel called the convention to order at 10:30 o'clock Thursday morning. S. S. Lichty, of Vinton, presented the report of the auditing committee, which was approved. President Holdoegel stated it was the desire of the executive committee to hear the sentiment of the association as to the advisability of continuing State Agent Hollis in the field for another year. Mr. Hollis modestly endeavored to retire from the room during the discussion, but was compelled to remain. Some few questions were put to him as to the nature of his work by members unfamiliar with it, but the expression of a number of those with whom he had come in contact during the year was unanimous in favor of his retention. This was crystallized into a motion by S. S. Lichty, authorizing the executive committee to re-employ Mr. Hollis and such additional help as they may seem desirable, which was carried unanimously.

George T. Hewes, manager of the Iowa clearing house, presented his report for the first year's work of that organization, making the following remarkable showing of increase in amount of business cleared up to October, 1906:

	Increase.
April over March (the first month cleared)	246%
May over March	316%
June over March	352%
July over March	475%
August over March	496%
September over March	555%
October over March	644%

Up to the completion of the pro-rating of the October business the number of employes had not been increased, having in mind the greatest efficiency at a minimum cost. It is now found that it will be more economical to increase the number and shorten the time consumed in completing reports to the several companies, which will reduce the cost of clearance to each. Forty-three companies have signed contracts with the clearing house, and thirty-three have reported details concerning their several systems as follows:

Population of the cities and towns whose exchanges and toll stations are reached directly by lines of the clearing house, not including population within the limits owned by the New State Telephone Company	767,549
Independent telephones, including rural telephones controlled by members of the clearing house (same exception as above)	135,685
Bell telephones in the same territory covered by clearing house lines	25,865
Number of miles of wire (air line distance), shown on clearing house Map No. 9:	
Copper	3,300
Iron metallic	8,862
Grounded	1,796
	13,958

Various other interesting data were presented in the report. Some of the advantages of the clearing-house system of checking toll accounts are as follows: Errors are discovered quickly and brought to the attention of the operators, which tends to increase care on their part. These errors are also brought to the notice of the originating subscribers so quickly that there is little trouble in making collections. All toll accounts are kept up to date and bills can be made out promptly. The purchase by the clearing house of standard forms of accounting in large quantities effects a saving to the companies of at least fifty per cent on their stationery.

President Holdoegel announced the presence in the convention of President Taggart, of the Missouri association, and called upon him for greetings from Missouri. Mr. Taggart responded briefly, extending a most cordial invitation to the members to attend the annual meeting of the Missouri association, to be held at the Coates House, Kansas City, on May 8th and 9th. President Holdoegel then called H. A. Douglas, of Cedar Rapids, to the chair. Mr. England read a paper on "Independent Long Distance," in which he treated most interestingly the history and progress of that service. Adjournment for luncheon was then taken.

The afternoon session opened with the reading of a paper entitled "Hints on Management of Traffic," written by Roy Walker, manager of the Mutual Telephone Company, Des Moines, which was filled with pertinent suggestions. Dr. E. W. Haradon, of Jesup, moved that the secretary be instructed to mail to each company in good standing in the association credentials ten days prior to any meeting, and that he be authorized, thirty days prior to any meeting, to mail an invitation to any Independent telephone company; and such credential or invitation shall be presented at the opening of the meeting to secure tickets of admission. The motion was seconded by J. H. Shoemaker, of Waterloo, and carried.

President Holdoegel stated that in the absence of instructions to that effect he had appointed a committee to draft resolutions, consisting of H. A. Douglas, of Cedar Rapids; Will M. Traer, of Vinton, and R. A. Walker, of Des Moines, and called upon that committee for its report. Mr. Douglas, as chairman, offered the following resolution:

"Whereas it is the sense of this convention that the success of this meeting has been largely due to the efficient efforts of the members of the program committee the persevering attention of the local members and the city of Sioux City and more largely to the untiring tact and good fellowship shown by the chairman of the entertainment committee Mr. Howard S. Baker and his able assistant Mr. C. H. Smith chairman of the program committee; also to Mr. J. H. Shoemaker who so masterfully handled the stereopticon lecture and to the initiative of Mr. George T. Hewes in preparing and operating the excellent views. We cannot commend too highly the original and marked ability of Mr. E. H. Martin as a master entertainer and ever willing worker in the cause we represent. Therefore, be it

Resolved: That the hearty thanks of this convention be and are hereby extended to these gentlemen individually and collectively and that these resolutions be entered on record."

Upon motion of Mr. England the resolution was adopted by a rising vote. J. H. Shoemaker, of Waterloo, moved that P. C. Holdoegel, as President; C. C. Deering, as secretary and treasurer, and J. S. Bellamy, J. C. Thorne, E. H. Martin and George N. Bandy, composing the present executive committee, be the unanimous nominees of this convention for the ensuing year. The motion was seconded by a representative from each of the five districts of the state, was put to a vote by Mr. England, vice-president of the southeastern district, and carried by a rising vote. President Holdoegel, in a neat speech, thanked the association for the support given him, modestly attributing the success of the work for the past year to the energy and euthusiasm displayed by the individual members rather than to the labors of the officers themselves. Secretary Deering also spoke briefly, reiterating the remarks of President Holdoegel in his opening address with regard to the importance of individual work in securing a larger membership in the association.

J. M. Plaister, of Fort Dodge, moved that in view of the unqualified success of the experiment of amending the constitution to allow holding the annual meetings wherever desirable, instead of at Des Moines permanently, the next meeting be held at Cedar Rapids. Mr. Bellamy, in seconding the motion, aroused considerable mirth by the statement that he and Roy Walker had come to Sioux City bearing invitation to the convention from the Commercial Club, the mayor, city council, the Boosters' Club, of Des Moines, to meet in that city next year, but as everybody in the room, including Mr. Walker, was wearing Cedar Rapids badges, it appeared that the Des Moines representatives were attending their own funerals, and they might as well keep the invitations for next year. The motion was carried by a rising vote, receiving, as President Holdoegel put it, the largest majority ever known.

W. H. Barker, of Sanborn, moved that each member act as a committee to solicit all neighboring persons and companies that are not members of the association and should become members, and that the secretary notify each member of the companies which should be solicited, the members to make report to the secretary as to their success. The motion was seconded by S. S. Lichty and was carried. District delegates to the International Telephone Association convention were announced as follows: Southeastern, J. S. Bellamy, Knoxville; northeastern, C. A. Peterson, Manchester; central, to be elected at the April meeting; southwestern, F. S. Musson; northwestern, to be elected. Upon motion, the matter of choosing two delegates at large was left to the executive committee.

D. M. Griswold, of Des Moines, moved that the association sanction the work of State Agent Hollis in promoting the "square deal" on " fair exchange" plan in preference to free service. The motion carried.

A vote of thanks was by rising vote extended to President Holdoegel and Secretary Deering for their faithful and efficient work during the past year.

The order of vice-presidents of the association, who by the constitution are presidents of the various district associations, was determined as follows: 1st district, E. E. England, southeastern; 2nd, O. E. Repass, central; 3rd, C. A. Peterson, northeastern; 4th, H. A. Kinney, southwestern; 5th, Dr. Graves, northweastern.

President Holdoegel brought up the matter of the advisability of the incorporation of the association, and upon motion of Mr. England the executive committee was authorized to take steps to have the association incorporated under the laws of Iowa as a corporation for pecuniary profit; shares of stock to be fixed at $5.00 each, one of which shall be issued to each member in good standing.

The convention then adjourned.

While Des Moines had previously established a high standard as an entertainer of telephone conventions, Sioux City clearly demonstrated, on March 19, 20 and 21 that there were other cities in Iowa equally capable and willing. The attendance and enthusiasm at this, the latest of the many successful Iowa meetings, were fully up to the standard, and the interest was well sustained throughout. So well did Sioux City demonstrate the fact that there are other hospitable cities in Iowa besides Des Moines that it was voted unanimously to hold the next convention at Cedar Rapids. A large share of credit for the entertainment provided at Sioux City is due to Mr. Howard S. Baker, president of the Sioux City Telephone Company, and chairman of the committee on arrangements.

Another feature of the Sioux City convention which went a long way toward proving that Iowa is not only the banner state of the Union in point of telephone progress, but is truly loyal to Independent interests, was shown by the fact that not only the Bell interests, but its subsidiaries and emissaries from the Kellogg company, were barred from the floor of the convention and prohibited from enjoying the privileges of the Hotel Garretson where the convention was held. Her sister states would do well to emulate Iowa's splendid example in this respect. Another feature of the convention, deserving of more than passing notice was the entertainment given at the opera house on the evening of March 20. At this entertainment J. H. Shoemaker, of Waterloo, delivered an entertaining lecture, founded on Paul Latzke's "Fight With an Octopus," and profusely illustrated with stereopticon views, most of which were reproduced from the pictures in the book. Other entertaining numbers included a Swedish dialect talk, and several whistling solos by Edward H. Martin, of Webster City.

The convention closed Thursday evening, March 21, with an enjoyable banquet at the Mondamin Hotel, at which E. W. Caldwell was toastmaster. Toasts were responded to as follows:

"Development of Telephony in Sioux City and Trade Territory"—Charles A. Dickson, Sioux City.

"Blue Points and Blue Prints"—James Shoemaker, Waterloo Exchange.

"Live Wires"—J. U. Sammis, LeMars Telephone Company.

"The Commercial Traveler"—J. J. Nate, Chicago.

"Telephone Girls"—Judge C. B. Kennedy, Canton, S. D.

"The Successful Exchange"—L. N. Hertz, Lincoln, Neb.

The menu for this occasion was very uniquely set forth in terms closely corresponding to telephone specifications. Everything was harmonious and strictly Independent, even the ice cream being moulded and colored in exact representation of the shield.

MARRIED BY TELEPHONE.

Southern newspapers have been making considerable to do over a wedding ceremony performed over the telephone. The minister lived in Jacksonville, Tex., and he was called up from out of town and requested to come forthwith for the purpose of marrying a couple. He had just returned from conducting a funeral in the country and did not feel like making the trip, so he notified the couple of his inability to go. The young people were determined to get married and finally succeeded in persuading the minister to marry them by telephone. A license was read to the minister by a third party, after which each contracting party was connected by telephone with the minister and each obligated separately. "Join your right hands," said the minister, and then after a few words the ceremony was closed with. "I pronounce you man and wife." "What do I owe you?" inquired the bridegroom. "Just send up what you think is right," replied the preacher.

DIGEST OF TELEPHONE PATENTS

By Edward E. Clement

825,587. Anchor. Cook. This is an anchor for guy wires, and comprises an auger adapted to be bored into the earth and having lateral extension plates so geared that they may be spread apart after the auger is at its proper depth. Patent assigned to Frank B. Cook.

830,391. Electrothermal Device. White. In an insulated casing is secured a flexible metallic diaphragm having connection with the line directly at one point and indirectly at another through a heat coil confined in a separate chamber of the casing so that upon an abnormal current the heat generated by the coil flexes the diaphragm so that it contacts with a ground terminal. Patent assigned to Frank B. Cook.

839,919. Cable Clamp. Cook. This clamp comprises a pair of jaws having alternately arranged teeth facing each other so that they engage the cables and imbed themselves therein when the bolts tighten up. Patent unassigned.

841,849. Electrothermal Protector. Cook. A pair of metallic spring members, each being provided with a projecting point to hold a heat producing member in circuit with the metallic members and in juxtaposed relation with a grounding spring. Patent unassigned.

842,301. Insulating Ring and Bracket. Cook. A sheet metal bracket is formed in shape of a channel iron with an insulating ring at right angles to the channel and a piece of hard rubber conformed to the ring is arranged so as to insulate the inner portion of each side thereof. Patent unassigned.

842,449. Transmitter Front. Weiss. Transmitter front may be made of a casting, it may be made up into several parts and fastened together, but the cheapest way to put up a front is to punch it out of a single piece of metal, which is the object of the present invention. It will be observed that the metal has been bent inward so as to form supporting lugs for the dampening-springs and the bridge supporting the microphone movement. Patent assigned to the Kellogg Switchboard & Supply Company.

842,628. Substation Protector. Cook. Mounted on an insulating base is a fuse tube removably engaged its terminals and in series with one terminal of a lightning arrester and a self-soldering thermal sneak current protector. Patent unassigned.

842,738. Fuse Mount. White. This is a fuse tube of the enclosed type which is provided with suitable terminals adapted to engage rigid contact members and to have its terminals forced into engagement with the contact members by a spring bearing laterally against one of the terminals. The other contact member overlies the carbon block lightning arrester and assists in holding it in place. Patent assigned to Frank B. Cook.

843,930. Non-Arcing Muffled Fuse. Cook. This is an enclosed fuse in which the fuse member and a string of asbestos fiber are squeezed through the tube side by side so as to fill the same and whereby the fuse member is imbedded in the asbestos. When the fuse member is fused the asbestos expands, takes up the gases and fills the space normally occupied by the fuse wire. Patent unassigned.

844,506. Telephone Trunking System. Dunbar. When the outgoing end of the trunk is plugged in to the jack of the called line a self-locking relay at the end of the other end of the trunk is energized. This relay energizes a ringing signal which is continuous until the ringing key is pressed for signaling the wanted subscriber. Patent assigned to the Kellogg Switchboard & Supply Company.

844,635. Carbon Ball Transmitter. Turner and Johnson. The inventor claims that the size of the balls which are extremely small prevents what is known as "cracking" or "frying," the balls being two to five-tenths of a millimeter in diameter. Patent assigned by mesne assignments to General Acoustic Company.

844,722. Receiver Support. Heisch. The transmitter is supported by a frame which has projecting therefrom an arm adapted to be adjustably regulated and having at its end an attachment for securing the receiver so that it may be placed against the users ear when his mouth is at the proper speaking distance from the transmitter. Patent unassigned.

844,839. Telephone Attachment. Whitehorne. This device is for attracting the attention of a subscriber with whom there has already been some conversation. The apparatus consists of a relay which operates a reed sounding bellows and is controlled by the switch-hook of the calling subscriber. Patent assigned to Howard C. Bailey of Philadelphia, Pa.

844,949. Sanitary Mouthpiece Guard. MacGill. The transmitter is provided with a holder in which there is secured a roll of paper suitably anticeptized and so arranged that it may be pulled down and torn off as desired. Patent unassigned.

845,056. Telephone System. Corwin. The transmitter at each substation is included directly in the line and choke coils are so arranged in the circuit as to force the telephone

current through the receiver. The hook is arranged in the transmitter circuit so that the receiver circuit is completed last. Patent unassigned.

845,062. Telephone Transmitter. Dempsey. The carbon button of this instrument is not operated directly from the diaphragm but through a series of levers indirectly connected therewith. As distinguished from the ordinary transmitters in use the inward movement of the diaphragm instead of inducing a pressure on the carbon granules reduces. Patent assigned three-tenths to William B. Beckman of Fayetteville, Arkansas; three-tenths to Harry T. Rodgers, and one-tenth to Madelene Dempsey, both of Chicago.

845,077. Telephone Trunking System. Goldrick. At the incoming end of the trunk a ringing signal is provided which is actuated when connection is established with the called line. This signal is rendered inoperative by a relay when the called subscriber responds. Patent assigned to the Kellogg Switchboard & Supply Company.

845,157. Composite Telephonic and Telegraphic Circuits. Yorke. The telegraph stations which are terminals of the line conductors have bridges leading to the telephone stations. A source of steady supply is included at the subtelephone stations and the bridges include condensers of such capacity as to exclude telegraph currents. Earth branches are connected to the bridges between the condensers and the telephone stations and are also provided

with condensers. This avoids any disturbing of the telephone instrument. Patent assigned to the American Telegraph & Telephone Company.

845,282. Telephonic Current Reinforcer or Repeater System. Warth. The main line circuit is complete through without repeating or induction coils included therein and is provided with repeater apparatus. An induction coil is included in a bridge across the line and the repeater apparatus is connected inductively therewith. The transmitting elements and receiving elements being in series with a divided primary. Patent unassigned.

845,328. Party-Line Lockout. Boone. In this system, which is a lockout system, there is ordinarily no potential difference between the terminal of the incoming station and the ground. If, however, a subscriber removes his receiver a circuit is completed with the main line wires and when the operator at central plugs in magnets at the other substations are energized thus locking out all other parties on that line. Patent assigned to the Peru Common Battery Lockout Telephone Company, of Peru, Indiana.

845,452. Telephone Trunking System. Dunbar. A differentially wound supervisory signaling device responsive to current in only one side of the line is included in the trunk circuit so that when an excess current is flowing through one side, as for instance when a connection is established at the outgoing end, the signal is operative. When the called subscriber responds both coils of the signaling device are neutralized and the signal rendered inoperative. Patent assigned to the Kellogg Switchboard & Supply Company.

845,533. Telephone System. Dean. One of the strands of the cord circuit has a portion common to a plurality of cord circuits and forms means for completing a testing circuit. A relay which is operated when the line is completed for conversational purposes cuts out the common portion of said strand and closes a locking circuit around itself so that the common portion is cut out during the connection. Patent assigned to the Kellogg Switchboard & Supply Company.

845,546. Telephone Magnet. Harrison and Haslett. This is a receiver magnet having the permanent magnet thereof formed in two semi-circular members connected together to form a ring. The pole pieces form the connecting means and are inclined toward each other. Patent unassigned.

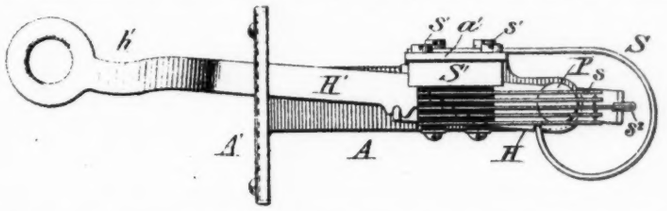
845,796. Multiplex Telephony. Lattig & Goodrum. In this invention the two trunk lines are combined to form a third trunk or phantom circuit. The ordinary trunks and the phantom trunks are so balanced, the inventor claims, that hardly any difference can be detected and there is no loudness or noise. This result is obtained by taking a tap off each side of the trunk line at each end uniting the corresponding pairs with suitably wound coil and connecting up each pair as one conductor to a contact of the jack. Patent unassigned.

845,848. Electrical Switch. Brackett. This is a switchhook for wall sets and comprises a frame having an escutcheon plate, a pivot for the switchhook and a lateral shelf for supporting the switch contacts. These contacts are carried by a metal block and the block and contacts form a unit which may be detached and replaced for different types of systems without changing or disturbing any of the other parts. Patent assigned to the Dean Electric Company.

846,068. Acousticon. Turner and Johnson. This is a device for use in lecture rooms or the like for deaf persons, and comprises a series of acousticon transmitters arranged around a triangular frame so that voice waves from any part of the room will be communicated thereto. Patent assigned by mesne assignments to General Acoustic Company.

846,114. Electrical Winding. Lattig & Goodrum. The object of this invention is to reduce the capacity of double wound coils and other pieces of apparatus wherein the conductors are closely associated and exposed to opposite potentials. This is obtained by reversing one conductor or body with relation to the other, so that instead of points between which there is a maximum drop being brought together, those having the minimum drop will be so associated. Patent unassigned.

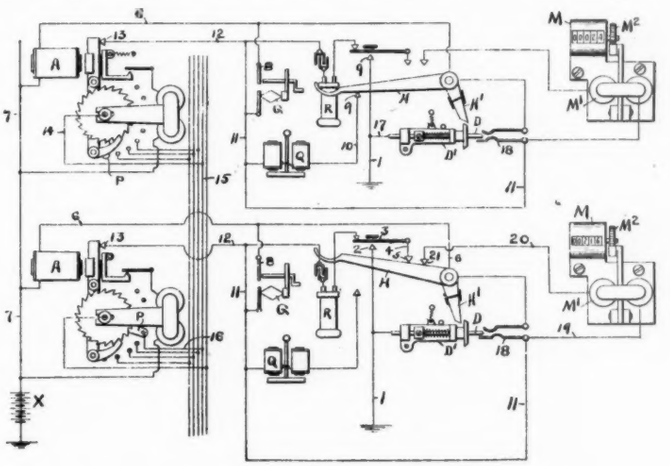
846,120. Electrical Switch. Manson. In this device a stub lever is removably pivoted to the base and is held in engagement with its pivotal point by its actuating spring.



The stub controls the set of springs and is operated by the hook lever which is made so as to removably engage the pivot and the stub lever. Patent assigned to the Dean Electric Company.

846,327. Calling Device for Telephone Exchanges. Lundquist. This is a sender for substations and is controlled by the switch-hook. A contact making device is arranged to be operated each time the hook is depressed, and there is a slipping connection so arranged between the contact device and the hook that the hook may be depressed at a greater speed than the movement of the contact member. Patent unassigned.

846,328. Registering Device for Telephone Exchanges. Lundquist. In this system there is included an automatic exchange having switching mechanism which may be operated by a subscriber at his local station so as to complete



connections with any other station and each station is provided with a registering device that is operated in response to a reply from the called station. Patent unassigned.

846,381. Telephone Exchange. Anderson. Each substation is provided with a magnet which is operated in the act of sending a signal. The subscriber in sending a signal closes the circuit of a similar magnet at central which completes a local circuit, included in which is the drop, the armature of which cuts out the battery which energizes the magnets of other substations. Patent assigned to John Anderson, of Salina, Kansas.

846,394. Telephone System. C. G. and E. J. Burke. When the subscriber initiates his call the line signal magnet closes a circuit at central which causes the line lamp to flash at intervals. The disconnect signal is different, although the same lamp is used and is characterized by a steady glow. Patent assigned, one-half to John Q. A. Whittemore, of Boston, Mass.

846,413. Telephone System. Kitsee. In this system the inventor has endeavored to reduce the size of the switchboard to its smallest compass. The jacks being only about

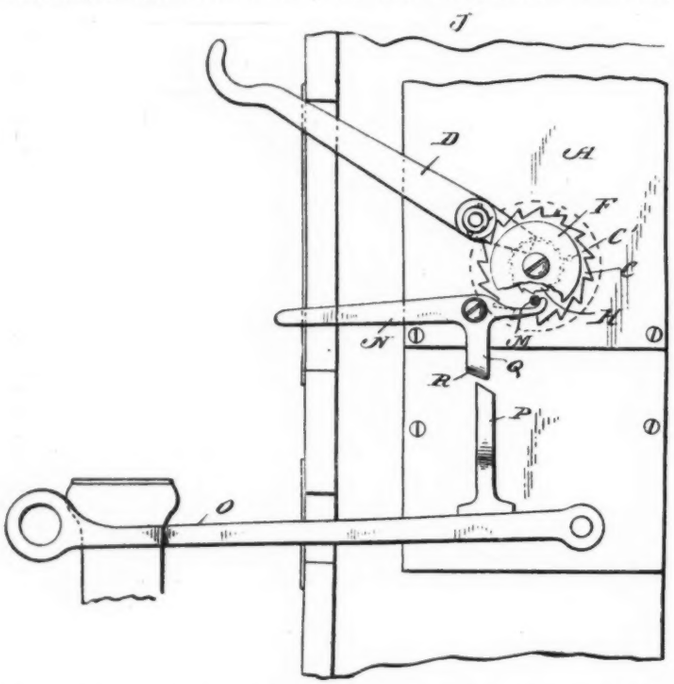
three-eighths of an inch wide and having only one line wire leading thereto. The plugs are also very small and also only have one line wire. The substation bells are grounded but the talking circuit is metallic. Patent unassigned.

846,479. Telephone. Koltonski. This is a house or intercommunicating system wherein push buttons for completing the circuits to the different substations are used. When a button is pressed ringing current is put upon the line and the talking circuit is completed when the button is released. The button may be returned to normal by pressing another button or by hanging up the receiver. Patent assigned to the Electric Gas Lighting Company of Boston, Mass.

846,557. Telephone Trunking System. Dunbar. In systems of this type the trunk relay has heretofore been of high resistance so that sufficient current cannot flow through it to operate the supervisory relay in the calling cord and to render the associated supervisory signal inoperative. In the present system the same results are obtained by means of a low wound trunk relay connected with one side of the trunk at its incoming end and with the ground, so that when the cord circuit is connected with the outgoing end of the trunk, the current finds no path over the metallic circuit and therefore the supervisory signal is not rendered inoperative until the subscriber responds. Patent assigned to the Kellogg Switchboard and Supply Company.

846,729. Fire Alarm System. Connor. In this system a plurality of circuits having repeating mechanism comprising a drum and contact plates thereon terminate in a central office upon fingers arranged over the drum so that upon rotation it will merge all of the circuits into a single common circuit so that signals may be sounded at a number of points. Upon further turning of the drum the circuits are again made individual. Patent unassigned.

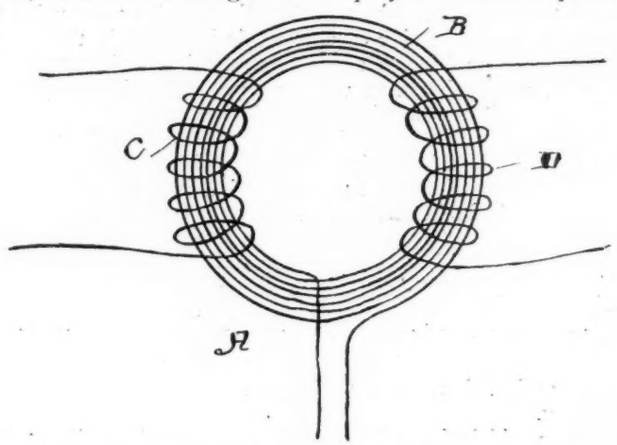
846,827. Telephone Service Apparatus. Couch. This is a release mechanism for make and break senders, and comprises a make and break device and a locking device so associated therewith and with the switch-hook that the



locking device is not operated upon the rise of the switch-hook but is operated upon the fall of the switch-hook or the depression thereof, so as to release the make and break device. Patent assigned to the Superior Automatic Telephone Company.

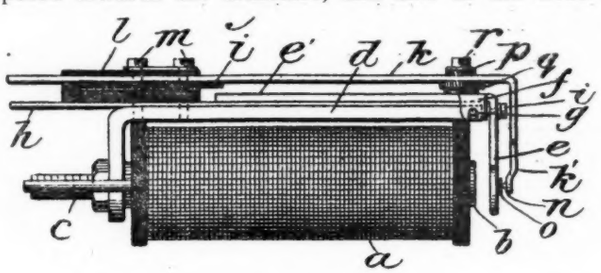
846,889. Telephone System. Andriano. Each station of this system has a switching device containing terminals for the line of every station excepting its own and a primary circuit including a battery and the primary winding of an induction coil. The substations are also provided with a ringing circuit including a ringing key and a movable switch piece operating to connect the ringing key in circuit with the line of any selected station, also a circuit connecting device between the primary circuit and the winding which operates when the ringing circuit is closed by actuating the ringing key to disconnect the primary circuit from its battery and from the line of its own station, and to establish when the ringing circuit is broken a connection between the primary circuit and the switch-piece. Patent assigned to Direct Line General Telephone Company.

847,008. Converter. Kitsee. Electric transformers or converters are generally made up with an iron core which is surrounded by the primary and secondary windings of the transformer. This invention, while it employs the iron core, calls for its being formed up by a continuous piece of



insulated wire. It is stated that a secondary current may be obtained from the wire forming the core and that various adjustments between the primary and secondary windings may be obtained through inserting different resistances in the circuit of the iron wire core winding. Patent unassigned.

847,197. Relay. Manson. The feature of this invention lies in the particular construction of the spring contacts as disposed towards the armature, and also in the wide air



gap provided between the pole piece of the magnet and armature. This for the purpose of rendering the relay insensitive to small currents while not interfering greatly when local circuit currents are applied to the relay. Patent assigned to Dean Electric Company.

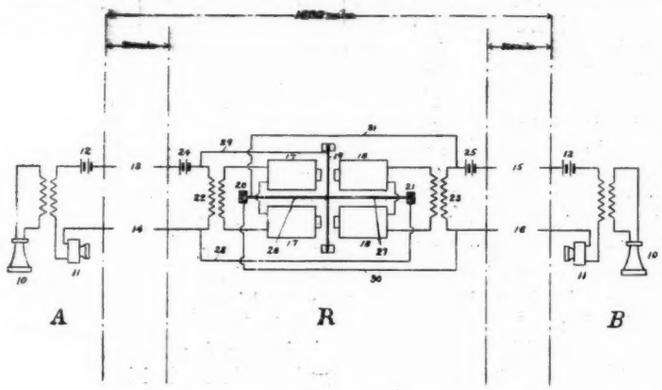
847,283. Telephony. Fisher. This is a selective system with each station provided with a selecting wheel operated by a polarized magnet responding only to impulses of a particular direction so that the wheel is turned to close the normally open contacts of the opposite direction. Patent assigned one-half to Geo. H. Duke, of Hotchkiss, Colo.

847,372. Lightning Arrester. Rolfe. This invention provides for a substance to be inserted between the car-

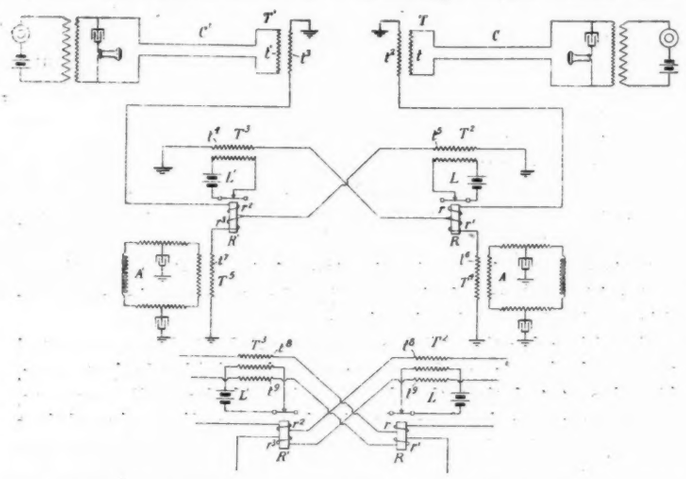
bons of a lightning arrester which will automatically close the circuit to be closed should the temperature between the carbons rise to a considerable degree. The substance possessing the quality of reducing its resistance upon being heated, and again automatically returning to normally high resistance requirements upon cooling. Patent assigned to Rolfe Electric Company.

847,461. Telephone Call Meter. Bradshaw. When the telephone user subscribes for a telephone in which he is entitled to a certain number of calls, or for which he is to pay for every call originating at his station, there is some satisfaction in having a register installed at his station so that he may observe at any time the total number of calls made. This invention provides an arrangement through which the subscriber's station may be equipped with a meter and at the same time permit of a call being registered only when the telephone user is present, and in such a manner that the operator at the central office also is informed whether a call has been properly recorded. Patent unassigned.

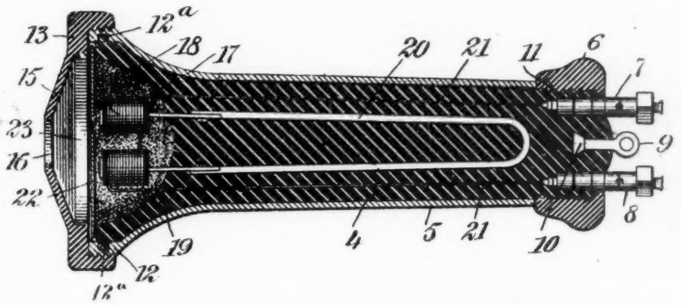
847,656. Telephone Relay. Dickert. This is another relay of the type in which the "talk back" habit of most forms of telephone repeaters is claimed to have been overcome by using the same diaphragm for both of the repeating relays. Patent unassigned.



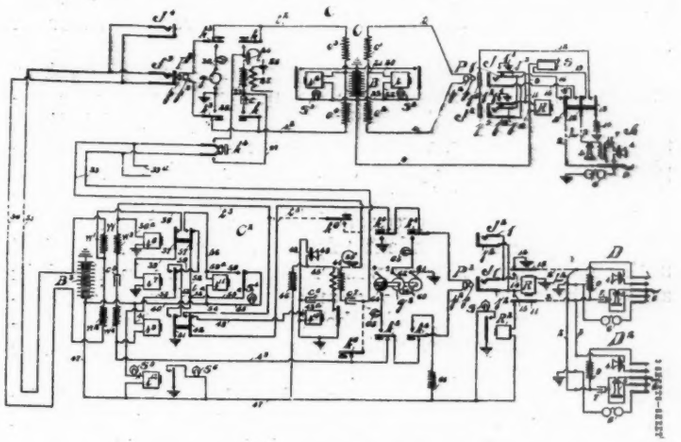
847,777. Telephonic Repeating Circuit and Apparatus. F. E. DeF. D'Humy. It is a well known fact that the telephone repeaters in which the secondary circuit is reinforced by current generated at the repeating station causes the setting up of a reciprocating action. In other words, "say something" to the primary side of the repeater and the current induced in the secondary side "talks back" and sets up the well known "howl." This invention is directed at overcoming the defect above mentioned by neutralizing the effects of the secondary current on the primary circuit. This is accomplished by the use of differentially wound relays. Patent unassigned.



847,842. Telephone Receiver. Steinberger. This is a telephone receiver in which the magnet system is imbedded in the solid material forming the containing case with the modification that the outside of the material forming the body of the receiver is covered with a metal shell. The binding post and the supporting screw are likewise imbedded in the material. Patent unassigned.



847,984. Telephone Trunking System. Dunbar. When it becomes necessary to render an inter-connecting service between telephone exchanges giving service to telephones of different character, say, local battery and common battery, special requirements are called for in connection with the trunking circuits. The present invention is directed at providing such a system. Patent assigned to the Kellogg Switchboard & Supply Company.



TELEPHONES IN TWO COUNTRIES.

Naturally, it would be expected that more telephones would be in use in this country than in England, still as between 7,107,385 in the United States on New Year's day and 410,000 in England at the same time the disparity is rather surprising. The difference, too, is clearly not due to America's being the bigger country, for New York City, with half London's area, and a much smaller population, has more than twice as many telephones, while the gain is at a five-fold greater rate. In the older country, the government manages a large share of the telephone business. Perhaps this is the reason it lags; or perhaps the individual Englishman is slow to take hold of it.

Independent telephone men have reason to be proud of the showing made by many rural exchanges, and to be glad indeed that the Bell has generally left the farmers' lines to Independent enterprise. Recently the directors of the Western Farmers' Telephone Company held a meeting at Eastman, Wisconsin, at which three shares of the company were sold for $56.50. Three years ago shares in the company sold for as low as fifty cents. Needless to say, the investors in this rural company think that Independent telephony pays.

MICHIGAN TELEPHONE CONVENTION

Independent Association Held Its Tenth Annual Meeting at Coldwater, March 7-8

By H. S. Cranfield

MEMBERS of the Michigan Independent Telephone Association held their tenth annual convention at Coldwater, Michigan, March 7 and 8, and both in point of attendance and interest manifested the two-day session was the most successful meeting held by the organization during the decade of its existence. The 1907 convention demonstrated that the Michigan Independents are in first-class condition, enterprising and alert, and ready to seize the opportunities for still greater prosperity and development in the future.

All the leading Independent telephone men of the state were present, as were a number of prominent factors in the movement from other states, and all derived much benefit from the gathering. The reports from the principal companies of Michigan were most encouraging and had the effect of stimulating the enthusiasm of every member of the association.

The convention met at the Armory, Thursday, March 7, at 2 p. m. A feature of the opening session was an address of welcome to the delegates by George E. Kleindinst, mayor of Coldwater, who was an operator in the local telephone exchange some years ago. Mayor Kleindinst assured the delegates and visitors that the keys of the city were at their disposal, and he proceeded in his remarks to trace the growth of the Independent telephone movement. He had nothing but praise to express for the leaders in the fight against telephone monopoly, and concluded with a handsome compliment to the Southern Michigan Telephone (Independent) Company, which has just constructed a fine new exchange at Coldwater.

A happy response to the mayor's welcome was made by E. B. Fisher, of Grand Rapids, the president of the Michigan Independent Telephone Association. President Fisher's annual address followed, and contained a review of conditions in the state which showed the movement in Michigan to be in an exceptionally healthy condition.

William Robinson, of Muskegon, the treasurer of the association, then offered his annual report, which showed a cash balance of $140 in the treasury. J. B. Ware, of Grand Rapids, the secretary, submitted his official annual report which was unusually interesting. The following papers were read at the Thursday session:

"Improving Toll Line Service," H. T. Clough, manager Owosso exchange.

"State Traffic Association," W. S. Vivian, manager, Grand Rapids.

"Telephone Patrons," Fred C. Hughes, manager Lansing exchange.

"Getting Business," C. H. Hood, contract department, Home Telephone Company, Detroit.

"Manitoba Experiences," N. F. Wing, president Farmers' Telephone Company, Jackson.

"State Managers' Association," F. V. Newman, manager exchange at Grand Rapids.

"Michigan's Thumb," H. A. Price, general manager Saginaw Valley Telephone Company, Bay City.

An adjournment was then taken until evening when the convention again met and listened to reports from companies, which were the feature of the second session. Some of the companies submitted written statements while others were verbal reports, but in every case the facts laid before the delegates told the same story of prosperity and progress for the Independent telephone movement of Michigan.

For instance, the Citizens' Telephone Company of Grand Rapids reported over 27,000 telephones in its system, owned by it in its more than 80 exchanges, besides nearly 4,000 miles of modern toll circuits. It has paid 38 quarterly cash dividends of 2 per cent, making the exceedingly good record of nine and one-half years of 8 per cent dividends annually. Its largest exchange is at Grand Rapids, with over 8,500 telephones, while the Bell has only about 3,500 in that city. The population of the city is 100,000.

Another interesting report was that made by W. B. Woodbury, general manager of the Home Telephone Company, Detroit, who reported that his company put 1,200,000 feet of underground in last fall, and will begin work again as soon as the frost is out of the ground. Poles for distribution have been placed, and a large quantity of cable has been drawn in during the winter. It is expected that the cable system for the main exchange will be completed by the time the exchange is finished. The building is already erected as far as the second story and will be finished in May. It is expected to begin service about September 1, 1907, and to give commercial service in October, or at the latest in November next. The verified contracts already signed number 10,174, as reported by C. H. Wood in his article on "Getting Business." Mr. Woodbury outlined the plan of developing other exchanges and the long-distance business in southeastern Michigan. The recent organization of the Inter-State Telephone and Telegraph Company, with $15,000,000 capital, was for the purpose of carrying out the plans named, and ample capital has already been secured.

F. M. Howard, auditor of the Saginaw Valley Telephone Company, reported for that company, which operates about 4,500 telephones in the Saginaw valley and upwards of 1,500 in the section known as "the thumb." In his paper on "Michigan's Thumb" General Manager Price had described the development in that territory and showed that while the Bell company has not a single exchange, the Independent company, with the three small companies, has about 2,000 telephones in the fifteen exchanges, and all are connected by good toll lines. Mr. Howard furnished information as to the amended franchise at Saginaw recently secured through the efforts of C. O. Trask, which has a satisfactory "sliding scale" of rates, and was passed by unanimous vote of the council after months of campaigning upon the problem, and with the hearty approval of the citizens generally.

This assures the modernization of the Saginaw exchange and without loss of time. Already $100,000 in cash for this work of extension has been secured.

Speaking for the Adrian company, W. O. Hunt reported 1,500 telephones, and 17 per cent in dividends last year. He also stated that the free service of the Bell company, so many years in force in Adrian, was discontinued last January, and with material results for the Independent company.

General Manager King, of Ann Arbor, reported that the Home company, with 1,796 telephones in Ann Arbor, Ypsilanti and Dexter, all made a splendid gain during the past year. He described the very satisfactory installation and working of four police telephones in public places with 12-inch gongs, and stated that the council had unanimously voted to increase the number. He also reported having 70 University of Michigan professors as subscribers to the

Home Telephone Company, the great majority having been secured during the past few months by reason of the popularity of the company's excellent service. The outlook is most satisfactory.

The report of General Manager Melchers, of the Union Telephone Company, Alma, showed 7,000 telephones. The company has paid 8 per cent dividends annually for eight years. Satisfactory growth has been experienced, and excellent prospects for a continuance of these healthy conditions seem assured.

President A. C. Himebaugh, of Burr Oak, of the Southern Michigan Telephone Company, reported having completed a large amount of long-distance and exchange work in southern Michigan during the past year, and has even larger improvements planned for the present year. The recently finished exchange in Coldwater is as complete and modern as any plant in the United States. It is all cable construction—the first in the state. Mr. Himebaugh stated that during the five weeks the plant has been operated not one case of trouble has been reported. The very high standard of construction in the Coldwater exchange, the recent making of contract relations between Mr. Himebaugh's company and the Adrian Telephone Company for long-distance development, and the building of an exchange in Hudson, insures for southern Michigan modern and adequate development for Independent telephone interests, and this is sure to come with great rapidity. Mr. Himebaugh hopes to build Three Rivers, and possibly Kalamazoo, during the year.

Many other interesting reports were made as to growth and conditions of companies throughout the state. While complete statistics are not yet compiled, the indications are that Michigan has 100,000 Independent telephones now in service.

Mr. J. B. Ware reported that but 2.76 per cent of the stock of the Michigan State Telephone (Bell) Company was owned in the state, and this is held by 76 different persons.

FRIDAY SESSION.

The convention met at 9:30 a. m., Friday, and the first number on the program was an address by J. B. Hoge, of Cleveland, president of the International Independent Telephone Association, who spoke on the work and aims of the organization. Frank L. Beam, president of the Ohio Independent Telephone Association, responded to a call for "Neighborly Greetings" from distinguished visitors. Mr. Beam gave an interesting account of the Ohio situation and submitted figures of telephone growth in the Buckeye state which surprised many of his auditors. He said that in 1896 Cleveland had but 6,500 telephones and that now there are more than 45,000 in that city—more, in fact, than there was in the entire state of Ohio in 1896. Mr. Beam said that last year the number of Independent telephones in Ohio was increased 22,000, and that the indications this year will see that record eclipsed.

Following Mr. Beam, papers were read as follows:

"Our Duty to the International Association," C. E. Tarte, general manager Citizens' Telephone Company, Grand Rapids.

"Encroachments," J. E. Hisey, president Laingsburg Telephone Company.

"Our Rural Friends," A. B. Fishback, manager Livingston Home Telephone Company, Howell.

"Important Lessons in Rural Service," Thomas Bromley, Jr., general manager Lake Shore Telephone Company, Hart.

"Conditions in the Northwest," Hon. J. B. Ware, Grand Rapids.

An unusually interesting address on "Chicago Connections" was delivered by Theodore Thorward, president of the Home Telephone Company, of South Bend, Indiana, explaining the present activity in building the long-distance lines in Chicago, and the rapid development of the exchange in his city this year. The obtaining of the long-distance connection with Chicago is of utmost importance to southern Michigan, and the assurances given by Mr. Thorward make certain the development of southwestern Michigan this year, including Kalamazoo, Dowagiac, Benton Harbor and St. Joseph. General Manager C. E. Tarte, of the Citizens' Telephone Company, Grand Rapids, announced that arrangements had been completed between the Citizens' company and the one managed by Mr. Thorward for Chicago connections, and that the toll lines between Grand Rapids and South Bend will be built this spring.

The convention concluded with a banquet at the Southern Michigan Hotel, which was attended by 150 members of the association.

The officers elected for the ensuing year are: President, E. B. Fisher, secretary Citizens' Telephone Company, Grand Rapids; secretary, W. S. Vivian, Grand Rapids, manager of the State Traffic Association; treasure, A. C. Himebaugh, Burr Oak, president Southern Michigan Telephone Company. Mr. Vivian's selection as secretary is most fortunate, as his constant and active relation to each of the operating companies in the state through the clearing house or traffice association, will enable him to obtain accurate data with great economy of time and effort.

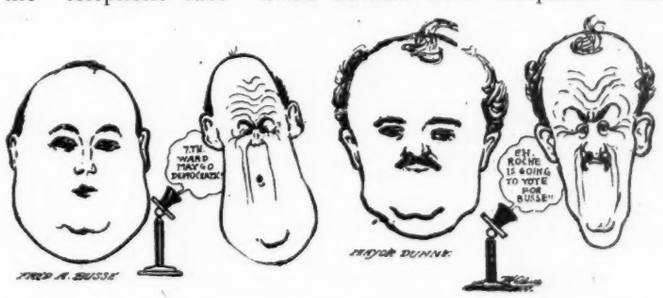
Following are the delegates named to represent the Michigan association at the International convention in Chicago in June: Delegates—J. B. Ware, Grand Rapids; W. B. Woodbury, Detroit; A. C. Himebaugh, Burr Oak; W. J. Melchers, Alma; C. E. Tarte, Grand Rapids. Alternates—R. B. McPherson, Howell; R. C. Smith, Homer; C. R. King, Ann Arbor; W. A. Young, Benzonia; H. A. Price, Bay City.

President Fisher appointed a legislative committee consisting of W. B. Woodbury, Detroit, Home Telephone Company; R. B. McPherson, Howell, Livingston Home Telephone Company; R. D. Graham, Grand Rapids, Citizens' Telephone Company; W. B. Melchers, Alma, Union Telephone Company; Thos. Bromley, Jr., Hart, Lake Shore Telephone Company.

As provided by the constitution the executive committee will be announced by the president at a later date.

THE TELEPHONE FACE.

The Chicago Examiner is responsible for the cartoon which appears herewith, and shows the normal expression of the two rival aspirants for the Chicago mayoralty, and the "telephone face" when advised over telephone that



things were not going as desired. Just how many people are getting the telephone face is not known, but if it has the same effect on everyone as upon Messrs. Dunne and Busse, the inventor of the telephone will have much to answer for.

A telephone transmitter has been installed in the M. E. church at Mt. Carmel, Illinois, and it receives the full force of the sermons delivered by the pastor, the Rev. Mr. Knight. All members of the church who have telephones in their homes can hear the sermons. The innovation was made for the benefit of members who are not able to attend church.

ADVERTISING LONG DISTANCE LINES

A Strong Argument Urging the Importance of Independent Companies Exploiting Their Toll Service.

By W. J. Stadelman

THE installing of telephone booths and pay stations is the first move Independent companies should make in order to inform the public of the fact that they have long distance lines and connections, and I do not believe there is any other improvement channel that money could be put into which would produce as great results as these two things. Their initial cost is not very much, and the convenience they prove to the public and to the telephone company is a matter of vital importance. It saves subscribers from being bothered by people using their private telephones for public use, saves the telephone company from unpleasant disputes with patrons over charges supposed to be collected, and obviates many other difficulties which are sure to arise. All of this, however, is not the real benefit that the telephone company is to derive—it is the money that long distance pay stations are capable of earning—and if you will figure the cost of installation of a long distance booth with the installation cost of a subscriber's line, and the relative revenue produced, you will find that the long distance pay stations are the paying investment.

I call to mind a small exchange operating in a town of 5,000 inhabitants that made an experiment by putting in a pay station in the railroad depot with a five cent charge for local connections and the regular charge for long distance connections. On account of the seeming uncertainty of the experiment a cheap booth was purchased, the entire equipment, including booth, pay station, telephone, line equipment and work costing less than $60. The first month of its operation it earned $5.20 and it is now yielding $130 a year. So much for a $60 investment. The experiment made such a good showing that the company decided to place booths and pay stations in all of the prominent public places in the town, which included not only one hotel and one drug store, but all of the hotels, all of the drug stores, and even the hallway of the city building. This company later placed a street sign near the railway station for the use of the hackmen, as they made this particular place their stand, and I have been not only told, but have been shown, that each one of these long distance pay station is a large revenue producing line for the money invested. This same company has now given orders that an effort shall be made to place long distance pay stations in all of the towns where it has exchanges. You must bear in mind the fact that the town I speak of has only 5,000 inhabitants. If this be true of a town of this size, the same rule will apply to any city of greater population. The relative increase will be larger in comparison with the increased population from the fact, as we all know well, that the number of conversations or the amount of business done over a telephone in the cities increases at a greater rate with the relative increase of subscribers.

Now, as to the psychological advertising of the words "long distance." You must understand that the establishment of long distance pay stations is not all that is required in order to get the money. You must be very active in your advertising. Let the people know that such pay stations have been placed for their convenience, and in doing this you must be careful to advertise in such a way as to get results. The term "long distance" has been sadly neglected by the Independent telephone companies throughout the country, to such an extent, in fact, that it is almost unknown among them, and so thoroughly has the word been used and applied by the Bell company that it is now considered a part of the monopoly's system. The mere mention of "long distance" almost seems to convey the idea that it is the exclusive property of the Bell company and in no way belongs to the Independents. This circumstance or condition has not been altogether brought about by the shrewdness of our opponents, but from the mere fact that we as Independents have not been sufficiently active in its use. We have resorted to the use of the words "Local," "Home," "People's," etc., to such an extent that they carry with their application just what they imply—a local or a home concern—and so strongly has this been fixed in the minds of the public that when the word Independent is seen it means to the long distance user nothing more nor less than a local company which covers only their immediate territory and has no significance or connection whatever with "long distance."

We as Independents are directly responsible, and in order to change this condition of affairs we must start at the bottom. Don't allow your operators to receive a long distance call under consideration without the subscriber making use of the term "long distance," and, if a call is received by your local operator, have her refer the subscriber to the long distance operator. I refer to this condition for small exchanges. Should your plant not be large enough to employ an exclusive long distance operator, or have a long distance board, then instruct the girl that operates the section with the long distance line to receive all outgoing messages as "long distance." and, if you only have one operator, call her your long distance operator, thereby compelling the public to connect this term in some way with your system. I speak of this in particular for the benefit of those who have been using the word "toll" instead of "long distance," for I have found several companies which are doing this very thing.

Do away entirely with the use of the word "local." This is not only meant for the small operator, but the large one as well. Its very use is not only dangerous but ruinous, for the Bell telephone company is using every effort to fasten it upon you in such a manner that it will be almost impossible to shake it off, and the longer we keep quiet and do not protect ourselves by discouraging its connection with us the more telling will be the effect.

Now, in order to change this condition, there must be a united advertising effort put forth by all of the Independent companies, fixing in the minds of the public the idea that the word "long distance" belongs to the Independents as well as to the Bell. As soon as this is done the sooner the results will be felt. There is no doubt that there will always be two telephone companies which are doing long distance work, just the same as the Postal and the Western Union Telegraph companies. Some of you may claim that the lack of advertising the word "long distance" does not exist in your territory. This was a case with some of my friends in Ohio. They claimed that they were getting more of the long distance business than their opponents. Let us see. I will cite you several cases which came to my notice in the very hot-bed of Independent telephony, where there is more Independent advertising done than in any one place that I know of. I refer to Cleveland territory.

I happened to be at Akron, and, stopping at the Empire

Hotel, and noticing only one telephone on the desk—an automatic—I asked the clerk if that was the only telephone that he had in his place of business. He immediately informed me that they had the "long distance" telephone, to which I was shown. After going to the place and finding that the instrument belonged to the Bell, I came back to the desk, and as the clerk was gone I asked the elevator boy for the telephone with which I could talk to Cleveland. Again was I shown to the supposed long distance Bell. I then asked if I could use the Independent automatic, and was informed that I could, which I did with good results. Had I not been familiar with conditions the Bell telephone company would in this case have received the money.

Calling on the secretary of one of the largest rubber concerns in Akron, I found two telephones on his desk and asked why he kept the two instruments there. I was told that one was the long distance and one was the local, meaning, of course, Bell and Independent. The latter has far more local subscribers and better long distance connections in this immediate territory, still this business concern never uses the Independent lines for its long distance service. The result is that the Independent company gets only the monthly rental for its telephone, which is $3.00, or $36.00 per year, while the Bell company receives the monthly rental of $3.00 with an additional $20.00 for long distance service, or a yearly income from this one telephone of $276.00. Does this seem like a fair and equitable division when the comparative service is in favor of the Independents? Doesn't it stand to reason that something should be done when conditions such as these exist? There seems to be no doubt that the lack of advertising is responsible.

Another instance was found at the Hollenden Hotel at Cleveland. Here the Independents have a very prominent space for their long distance pay station, fitted up with handsome walnut furniture, and they should naturally receive the larger percentage of the business, but such is not the case, for the Bell company has seen fit to hang directly over the Independent operator's desk an attractively framed blue enamel Bell sign, with the words "Use Bell Pay Station" and a large white hand pointing to the booth, which is around the corner and in an out of the way place. However, the willing patron, in walking up to the Independent desk, has his attention diverted by the Bell sign, and unconsciously passes the Independent station, walks over to the Bell station and gives it his money. This same condition exists at the Colonial Hotel. The Independents there have again by far the better location, the Bell pay station being behind the elevator and entirely out of sight of the general public, but all the signs around the office desk point to, or say something about, the use of the Bell long distance lines. Upon making inquiry at this particular station as to the relative amount of business done, I found that the Bell people have an average of eighty-five local calls per day and do about $8 long distance business, while the Independents have only forty-five local calls and do about $3.50 long distance business. This condition is not reasonable, because, as I have stated before, the Independents in this territory have far better local and long distance service, and should get the greater amount of business, especially as the Independents have the immediate territory well supplied and practically all covered with long distance lines. Besides, seventy per cent of the long distance business is done under a thirty cent rate, and therefore the Independents should receive the greater amount of the long distance traffic.

Upon leaving Cleveland you will notice at the passenger station a very large railroad sign which displays the words "Show your tickets before entering the gate." This sign is about thirty feet long, and directly under it is another sign about twenty-eight feet long, which reads, "Use Bell Pay Station," with a hand pointing to its location. In cases of this nature it is very hard for the Independents to get prominent advertising space at the hands of the railroads, for there seems to be a disposition on the part of these corporations to favor the Bell telephone company. It only goes to show, however, how extremely active the Bell people are in taking advantage of any and all conditions in order to get their signs and advertising in conspicuous places.

I have cited you Cleveland and surrounding territory, as I stated before, on account of the seemingly thorough manner in which the Independents have advertised, and how especially alert the Bell people have been to the situation, and I wanted to show by this that no matter how active and progressive we are in our advertising the Bell people display two signs where we display one.

At Washington, D. C., you will find an altogether different situation. The street urchins and hotel attaches hardly know where a telephone pay station is located, there are very few signs, and the advertising is noticeably scarce. This condition always exists in towns or cities where there is no competition. There is no reason for the Bell people to spend their money in advertising in such cities, and, besides, there is no incentive to give good service to the public except where they are compelled to. In Boston, for instance, since the granting of an Independent franchise, the Bell is becoming very active, and has many clever advertising men on the ground fixing permanent, attractive long distance signs and stations in all of the public places. By the time the Independents are installed the general public will be educated to understand that, even though there is competition, the new Independent company will be only a local concern, and will have no long distance lines. With this argument the Bell telephone company keeps its instruments in all places of business, and uses every effort to instill into the minds of the people that the Bell is the only company able to give long distance service. The Bell agents discourage and scoff at the idea of the Independents even making an attempt at such service, and in this manner the word "long distance" is again fixed in the public mind as being the exclusive property of the Bell telephone company.

Then there is St. Louis, with its good, strong, Independent telephone company, the Kinloch. Its pay station sign at the Union railroad station reads as follows: "Connections with Sedalia, Jefferson City, Nevada, Kansas City, Joplin, Terre Haute, Indianapolis, Louisville and intermediate points." The Bell company's sign reads: "Long distance service to all points in the United States and Canada." Can you grasp what this kind of expensive advertising means to the long distance user who is not thoroughly familiar with the telephone situation? It simply means that the Bell company, by its far-reaching, misleading, but thorough advertising, is capable of getting the money, and I believe the method of advertising adopted by the Kinloch company is costing that concern many dollars every day. Why not copy after the Bell and say "Long Distance Lines Everywhere"? Then you would get an even break with the Bell. You would at least get an inquiry for the long distance calls. Let your operator state whether you have these connections or not. Don't advertise certain points. It is misleading and fails to get results.

Another seemingly gross mistake by the Independents is the fact that after they have closeted themselves as boards of directors and devised ways and means of building good, long distance, Nos. 8 and 10 copper lines, making connections with tthe important points in their territory, they then neglect to mention it to anyone, not excepting their own employes. A case of this kind was brought to my attention by Mr. Parmele, a pioneer Independent telephone man of Plattsmouth, Nebraska. As he was returning from the coast he stepped off his train at Grand Island in order to telephone home that the train was late. Upon going across the street to the hotel he found that he wouldn't have time to put in his long distance call, so he left instructions with

the proprietor, requesting him to use the Independent lines from Grand Island to Plattsmouth. The hotel proprietor said that the Independents had no connection that far. Mr. Parmele immediately informed him that the Independents had a good copper long distance line and it had been built more than a year. The proprietor was very much surprised, as he had been in the habit of using the telephone frequently between Grand Island and Plattsmouth, a distance of about 150 miles, and in all cases had given his money to the Bell company.

Cases of this character are so frequent, and have come to my personal notice so often, that I could go on indefinitely describing them. In fact, I do not know of a single instance in which an Independent company has exhausted all its resources to inform subscribers and the general public of the fact that it has long distance connections.

I would suggest that in cases where new long distance lines are built, closing up gaps, new territory is covered, or even where long distance lines are now built, that a bulletin be gotten out immediately, showing the number of new connections and giving all information relative to the same. You should then see that every one of the employes of the telephone company, including the office boy, groundmen, linemen, operators, board of directors, president, and all, is given a copy; also a list of your connecting stations and their attaches, all of your subscribers, not excepting even those on the farmer lines. Put notices in the local papers and keep standing advertising there if necessary. In this manner you will get before the public the fact that you are at least accomplishing something.

A condition due to systematic advertising was forcibly brought to my notice the other day at Waco, Texas. Mr. J. B. Earle, president of the Texas association, in his speech of acceptance, made the statement that during the year 1906 he had not expended a dollar for the building of any new lines or circuits, but had given his entire time and attention to advertising those that he had already constructed, and that at the end of the year he was agreeably surprised to find that his long distance business had been increased fifty-five and one-half per cent. With this fine showing I do not believe it possible for any of us to spend our money in any better way.

While in Chicago a short time ago, arranging to get out an order of about 1,000 signs, and thinking this quite a large purchase at one time, I was surprised to learn that at that time a firm was putting in an order for 50,000 at the average price of $1.00 each. I expressed my surprise, and was then informed that there was nothing very startling about that order, as the firm was then working on an order of 75,000. So great did the figures seem to me that I was afraid to ask any further questions. These, however, were not telephone sign orders, but it only goes to show that the manufacturer, the jobber, and retail man, and, in fact any one who has the goods to offer, does not hesitate to advertise. Stop and think of some of the advertising that has been done by manufacturers of certain lines of articles. If you were told to bring home a certain kind of scrubbing soap, and had forgotten the brand, upon entering the store to make your purchase, and if you could think of no other name, the word "Sapolio" would surely flash into your mind. The same will apply to any other article which has been persistently brought to your notice by what is known as "psychological advertising." Now, if we as Independents can produce this same effect with the word "long distance," fixing it permanently upon the minds of the public, showing that the word belongs to us as well as to the Bell, we can pay more dividends by accomplishing this than in any other manner. In the past sixty days I have traveled through seventeen states, making the principal cities wherein the Independents are strong and seemingly active. I have made inquiries of 211 attaches of the various hotel in these cities as to where their long distance booth was, and in every instance was shown a Bell station. I have tried my best in all this time to find someone to show me an Independent booth, but have failed in every instance. This is certainly a deplorable condition, especially if we expect to make money out of our long distance lines, which we have been so active in financing and constructing. By omitting the word "local" entirely from all of our advertising, substituting in all instances the word "long distance," and making it the dominating feature above even "Independent," we would accomplish the desired results. The day of sympathy in the telephone field has long since passed; it has now resolved itself into a purely business proposition of dollars and cents. If this line of thought on advertising, as I have above stated, were thoroughly and systematically carried out I will venture to say that the long distance business of all of the Independent companies throughout the United States would be increased at least twenty-five per cent with absolutely no expenditure for additional equipment.

THE TELEPHONE IN HAWAII

Unique Line Constructed Into the Mighty Crater of the Volcano Kilauea

By George C. Cobden

From Hawaii, which is one of Uncle Sam's first insular possessions in the Pacific ocean, comes interesting information as to the extension of telephone development. Builders of telephone lines have climbed mountains, penetrated forests, delved in mines and gone beneath the surface of the water, but a hotel proprietor in Hawaii has eclipsed all such records. His name is George Lycurgus, and he has built a telephone line from his hotel down into the mighty crater of the Kilauea volcano. Fiction writers have, in imagination, constructed telephone lines to the planet Mars, and scribblers of verse have sung of telephoning to heaven and the "other place," but Landlord Lycurgus is the first actually to build a line to the nether region, which is well represented by the great volcano.

The distance from the Kilauea Volcano House to the crater is about two and a half miles. The telephone line runs to the entrance of the crater and then dips down and across the floor of the fearsome place to the very brink of what is known as "the pit of fire," which is called "Halemaumau" in the Hawaiian tongue. In this way communication is established between the outside world and the fiery pit which, the natives say, is the dwelling place of Mme. Pele, the Hawaiian goddess of fire.

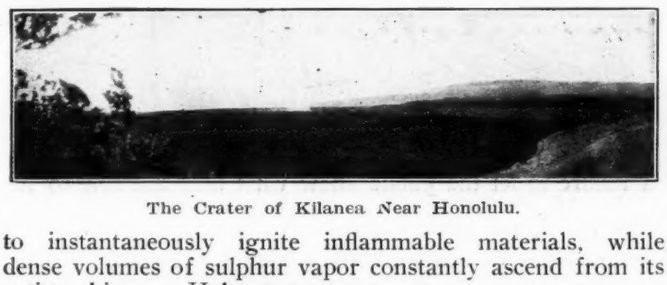
In the crater flames, smoke and fiery lava are constantly in activity. Tourists who visit this scene will welcome the opportunity to telephone their friends at the hotel and know that, while their own surroundings are grim and fearful, the outside world is still beautiful and bright. The

volcano telephone, so to speak, will relieve the feeling of dread and horror which strikes those viewing the eruption that so vividly suggests the pit of Sheol.

Kilauea volcano is a scenic wonder that attracts visitors from all over the world to Hawaii. It is the largest known living volcano. In shape, it is a depression in the mountain side, 4,000 feet above sea level, though some geologists believe it was originally a separate peak whose identity was lost when lava from Mauna Loa filled the valley between.

Its extreme width is 1.95 miles; length, 2.93 miles; circumference, 7.85 miles; area, 4.14 square miles. The crater floor is 900 feet below the rim.

For many years Kilauea's periods of activity have been spasmodic; but even in its most quiescent mood there has always been sufficient heat at the surface of the lava floor



The Crater of Kilauea Near Honolulu.

to instantaneously ignite inflammable materials, while dense volumes of sulphur vapor constantly ascend from its active chimney, Halemaumau.

The center of activity is reached by a trail and is about 3 miles from the Volcano House, located on the crater's rim. All along the road are odd and irregular lava formations, small caves and cones sending forth vapor incessantly. The broad stretch of lava resembles quickly hardened pitch or coal tar and the varied colors and shapes are full of interest.

Honolulu, the principal city and harbor of the island, is the half-way house for travelers between America and the Orient and receives thousands of tourists every year.

Scores of people have recently returned to Honolulu with interesting stories of their experience at the lava flow on the island, but without exception the most original experience related was that of F. W. Klebahn and E. M. Campbell, two prominent business men of Honolulu. They visited the flow at a point about 5,000 feet above sea level. They made the mistake of not providing themselves with warm clothing and heavy blankets. Of course with a telephone line in operation between the hotel and the volcano such mistakes could easily be rectified, as a message would have enabled the hotel attaches to send on the supplies necessary for the comfort of the tourists.

However, they were invited to occupy part of a tent near the flow and they gladly accepted. But the tent afforded little resistance to the chill of the mountain air. Neither man seemed able to get warm, and for hours they lay in actual misery from the cold. Finally Klebahn decided upon a very novel method of overcoming the lack of heat-generating garments by making the lava-flow and there to try to go to sleep. The top of the flow proved but a hard bed, with the multitude of coke-like clinkers of lava, but it was warm. Underneath this outer covering of a-a lava was an inner stream of pahoehoe lava, a hot molten mass of fluid that gave forth heat in quantity to have satisfied the coldest blooded person.

This very novel place of slumber did not travel quite so fast as a folding bed, but it kept moving steadily and irresistibly toward the sea, for when the pair awoke in the bed at daybreak they found that the lava had moved fully 50 feet toward the ocean during the time of their slumber, leaving their clothes hanging on a tree behind them.

Although the lava flows from the higher slopes of Mauna Loa have subsided, there is continued activity at Kilauea. The inner pit of Halemaumau is beginning to fill up rapidly. Some weeks ago it was measured by a surveyor and found to be about 600 feet in depth. Since that time the boiling, seething lava in the mighty cauldron has filled up several hundred feet. Some persons believe that the pit will fill entirely to a level with the floor of the outer crater of Kilauea.

Reports from the other side of Hawaii, where the big lava flows occurred this month, indicate the source of one flow was about five to six miles down from the top. The source of the first flow appeared to be at an elevation of about 7,000 feet. At that point the lava was leaving the side of the mountain in vast quantities of liquid mass.

Honolulu is to have an Independent telephone system. The United States Congress has ratified the franchise granted the Standard Telephone Company, Limited, by the Hawaii legislature, and work will begin at once to furnish the islands with a modern telephone service.

The company is capitalized for $500,000, with the following officers and directors: Guy Owens, president; D. P. R. Isenberg, vice-president; Harry Armitage, treasurer; H. E. Murray, secretary; I. C. Carter, auditor.

A franchise was granted to the Standard Telephone Company, Limited, by the legislature of Hawaii April 26, 1905, and pursuant to the organic act was duly ratified by the United States Congress in 1906.

The franchise covers the entire island of Oahu, the second island in point of size, which is forty-six miles long by twenty-six miles broad, with an area of 600 square miles and a population of 75,000.

The telephone installation will consist of 1,000 residence telephones; 300 business telephones (direct line); and 200 rural telephones (party line). The class of construction includes eight miles underground in the business section, sixty miles aerial cables, in residence section, and one hundred miles pole line, No. 12 copper, in the rural districts.

An automatic system will be used within the city, and the best lock-out system on the market for the rural service.

The Standard company will have its own building, absolutely fire-proof, of reinforced concrete and steel construction, and will be located in the business parts of the city. The Standard Telephone Company, Limited, was incorporated in February, 1901, and like many Independent companies had a hard siege in securing a franchise.

Its president, Mr. Owens, was for many years engaged

Honolulu, as Seen from the Harbor.

in electrical construction work in Chicago, and went to the islands in 1897, and installed the entire electric lighting and telephone systems in five of the largest sugar plantations. In 1902 he became connected with the Standard company, and in conjunction with an associate attempted to get a bill through the legislature of Hawaii in the spring of 1903. The influence claimed by the associate failed to materialize, and the attempt failed. He did not forget the old saying, "If you want a thing done well, do it yourself," however, so by careful planning and proper tact the franchise passed by a large majority in April, 1905. President Owens has control of the present stock issued, and it is expected that construction work will be pushed rapidly.

A large force of skilled men in all the necessary branches will be secured from the United States. Mr. Roy Owens, superintendent of the automatic department of the Citizens' Telephone Company of Columbus, Ohio, is a brother of Mr. Guy Owens, and will soon join him in Honolulu.

A SPECIAL WORD TO SUBSCRIBERS

In requesting change of address, always give the name of the post office to which your magazine is sent. Your name cannot be found on our books unless this is done.

TELEPHONY is not returnable from the newsdealer. If you desire to purchase the paper from a dealer it will be to your advantage to notify him that you will want it, in order to insure his having a copy for you. If you wish to receive the paper regularly, please send in your subscription so that we can mail it to you direct.

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EDITORIAL DEPARTMENT

THE TELEPHONE STORY OF MICHIGAN.

WE WANT to call the attention of our readers to the "Telephone Story of Michigan," which is given the place of honor in this issue. The story is told from an historical standpoint by J. B. Ware, and will be found of interest to telephone men throughout the country and of especial interest to Independents of the Wolverine state. Mr. Ware is particularly well qualified to tell the story of Michigan, having devoted the past twelve years entirely to telephone work. He not only had the active business management of the largest Independent company in the state, but the first large one in the country. He was a marked factor in organizing the scattered companies in Michigan into a state association and was its president until he removed to Buffalo, where he devoted his time to the development of western New York. At the Philadelphia convention he was elected secretary of the National association. He appeared before the Parliament committee at Ottawa in 1905 and devoted two months of last year to the service of the Province of Manitoba in a campaign for public ownership of telephones, which won out by a decisive majority.

Mr. Ware has long been known as a loyal Independent and his history is interwoven in the story of his state.

ADVERTISE LONG DISTANCE LINES.

IN this age of business strife and competition it matters little how good may be the thing you have to sell if you make no effort to bring it into public notice and attract the attention of those who are in the market to buy. The same rule applies to dry goods, steam engines, hair tonic, mining stock or telephone service. If you want people to buy your commodity it is necessary to let them know about it. and convince them that it is just what they need. Our Nebraska friend, Mr. W. J. Stadelman, says that Independent telephone companies all over the country are woefully negligent in advertising their long distance lines, and in this issue of TELEPHONY sounds a warning that deserves not only a careful perusal but immediate attention in a practical way. He has been surprised to find in many localities that the Independent companies are not taking advantage of their long distance facilities simply because of a failure to let the public know what they are able to furnish. Mr. Stadelman does not deal in glittering generalities either, but gives specific cases in which Independents who should be enjoying the cream of the long distance business are overshadowed by the Bell owing to the latter's more aggressive policy in advertising its facilities. There is food for thought in this presentation of facts, and not thought alone but prompt corrective action.

There can be no argument against the case as made out by Mr. Stadelman. The merchant or manufacturer having a superior article who sat listlessly down and permitted a competitor to seize all the trade through sheer lack of enterprise in displaying his wares would be considered a poor excuse for a business man. His commercial finish would not be hard to foresee. Independent telephone men should hasten to profit by the lesson outlined, and see to it that the Bell does not outdo them in the way of advertising their long distance connections. There is deep significance in the very fact that the monopoly is straining every nerve to keep its long distance signs where they will obscure those of the Independent companies. The Bell has long asserted that its toll connections gave it a great advantage over the Independent lines. In fact, as the Independent movement has developed, that has been about the only argument left the Bell to prove its alleged supremacy. Now that the Independents are challenging the trust on that same issue the Bell seeks to make up its losses by a more vigorous exploitation of its long distance facilities. By persistent advertising, the use of effective signs and tricks of all sorts the Bell is striving to maintain the idea that it has the only long distance service worth mentioning.

Independent telephone men are enterprising and resourceful. If they were not they would not be where they are to-day, considering the foe they have fought and the tactics

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that foe has adopted to stifle competition. By alert and judicious advertising the Independent long distance service can be pushed to the front and insured the public patronage to which it is justly entitled. The Independent companies having long distance lines should not hide their light under a bushel, but take advantage of their opportunity to contest the Bell for business in a field where it is making a last stand. Let the Independent long distance lines show the same enterprise and industry in seeking business that have characterized the movement as a whole and the Bell will have to take a back seat in the territory referred to by Mr. Stadelman. There is no gainsaying the argument: "It pays to advertise."

THE KELLOGG AGAIN.

FROM an Independent telephone man in Missouri TELEPHONY has received the following letter:

> Please pardon us for asking you to give us a direct answer but we would be glad to know if the Kellogg Switchboard & Supply Company is connected with the Bell people, or is that concern with the Independents now?

As a subscriber the writer of the above letter is entitled to a frank answer from TELEPHONY. Being from Missouri, too, it is natural that he should insist on being shown the facts plainly. The answer to the query, then, is this: The Kellogg Switchboard & Supply Company is a Bell-controlled concern. Despite its efforts to conceal its connections, it is known—and *well known*— that the Kellogg company is an adjunct of the Bell monopoly and hence has no right to a dollar's worth of business from an Independent company. No Independent should patronize the Kellogg Switchboard & Supply Company, for the excellent reason that the money so expended would soon find its way into the Bell treasury and be used to fight the Independent movement wherever the battle is fiercest. As frequently pointed out in these pages, TELEPHONY deems it of vital importance for Independents to ignore the bids of the Kellogg concern for Independent patronage. Give Independent trade to Independent manufacturers, instead of furnishing the enemy with the ammunition with which to fight you.

TELEPHONY has urged the necessity so often that it might seem rather strange that a subscriber should be doubtful on the subject, but an incident which occurred at the Texas convention recently may account for this uncertainty on the part of the Missouri inquirer. In the report of the Texas convention, found on another page of this issue, the following paragraph will be noticed:

> Upon motion of Mr. Emmer Mr. Stadelman was invited to discuss the matter of telephone magazines accepting Kellogg advertising. Mr. Stadelman expressed it as his belief that under the postal regulations, magazines were compelled to accept legitimate advertising at the regular rates charged other advertisers. Mr. Smith of the Transmitter was present and said the statement was correct, and, contrary to his wishes in the matter, the next issue of the Transmitter would contain Kellogg advertising.

Unintentionally, no doubt, Mr. Stadelman gave the wrong impression in intimating that telephone magazines are compelled to accept advertising offered at regular rates. Not being in the publishing business, he might be excused for the error, but the same allowance can hardly be made for Mr. Smith. There is nothing in the postal regulations or any other rule or law, written or unwritten, that compels a publisher to accept advertising he conscientiously believes should be excluded from his journal. For that reason some of the large popular weeklies and monthlies refuse whisky and patent medicine advertisements. It is their policy to bar such advertising, and no power can compel them to accept it. If there were, such advertising would be in these particular publications, for "money is no object" with the purveyors of those commodities.

Another convincing proof that no publication is obliged to accept any and all advertising is the fact that TELEPHONY does not contain the advertisements of the Kellogg Switchboard & Supply Company. It is hardly necessary to explain that the reason for excluding the Kellogg advertising is the same reason why Independent telephone men should not buy apparatus and supplies from that concern, namely, because it is a Bell company. TELEPHONY knows that the advancement of the Kellogg company means, in a corresponding degree, the advancement of the Bell monopoly, and declines to be a party to it even though it might increase the earnings of this publication. As an advocate of the Independent movement TELEPHONY does not feel that it can conscientiously accept Kellogg advertising. There is nothing in the postal regulations bearing on the subject and the Kellogg concern, so long as it is controlled by the Bell monopoly, must find another medium for advertising its goods. The Kellogg Swithboard & Supply Company has repeatedly tried to secure space in TELEPHONY's columns, but without success. So long as this journal advises Independent men to beware of the Kellogg-Bell wares it feels that consistency demands its own adherence to the same policy.

So, then, notwithstanding the statements of Mr. Stadelman and Mr. Smith at the Texas convention, it will be seen that there is no way for the Kellogg concern to force its advertising on telephone journals that are averse to cooperating with a Bell company. If the telephone magazines really desire to bar the Kellogg company they only need to follow TELEPHONY's example and say "No."

At the annual convention of the International Independent Telephone Association in Chicago last June, the following resolution relating to the Kellogg situation was adopted:

> "It is known that the Kellogg Switchboard & Supply Company of Chicago is owned by the Bell officials; therefore
>
> "Be it Resolved, That this association recommend that its members and all Independent telephone companies and individuals refrain from purchasing apparatus from such company; providing, that those now using the Kellogg equipment may continue to purchase additions and extensions without prejudice.
>
> "And Be it Further Resolved, That in the event of the Kellogg Switchboard & Supply Company again passing into the control of Independent people, that this resolution will be void and of no effect."

The meaning of that resolution, of course, is that it is folly for Independents to pay their money to a company that is controlled by the Bell monopoly. The same argument has been made repeatedly in these columns, and our Missouri friend, and all other Independent men, are hereby advised again that the embargo is still in effect. Nothing has occurred since last June to change the complexion of the Kellogg situation. The company is still under Bell control and therefore is entitled to no support from Independent sources.

TELEPHONE; DON'T WRITE.

MORE and more every day the telephone is taking the place of writing letters in the transaction of business. No doubt there will always be more or less correspondence in business life—especially in cases where records in black and white are necessary—but the practice of doing business by telephone is widening constantly. It is not improbable, too, that the time will come when telephone conversations will be recorded as an ordinary incident of the exchange of messages, and then the letter will have no advantage at all over the telephone communication. That letter-writing has many disadvantages compared to telephoning is daily shown by the fact that business men utilize the telephone scores of times a day when they formerly resorted to the slower process of correspondence.

In a recent issue of the Commercial Handbook, an English publication devoted to business methods and systems, the following paragraph appeared:

"A careful calculation of all the various items of expense that enter into a business letter, including postage,

stationery, time in dictating, time of typewriting, etc., shows that the average cost of a business letter is about ten cents. The average cost of a telephone call, message and reply or acknowledgment complete, is two cents or less."

The inference is that the telephone is destined to play a more important part in commercial life and that letter-writing is likely to decline in a corresponding degree.

"Really this correspondence is getting beyond all bounds. Something must be done to keep it down." This complaint is often heard from the manager or the head of a department when he finds himself confronted by a huge pile of letters for signature. Much of it is trivial stuff, too, acknowledging receipt of communications for instance, "as a matter of courtesy," and because it is "business-like."

The question then occurs: Is it business-like in these strenuous times to dictate a letter, have it typewritten, copied, addressed, stamped and posted in order to assure your correspondent that you have received his letter? He knows you have in all probability received it and if he does not get the reply he wants in a reasonable time will remind you of it, just the same as he would if you had acknowledged it. The probability is, too, if the matter is particularly urgent he will remind you of it by telephone, thus saving time and money and learning promptly how the matter stands.

Of course the point is often made that one needs to have the proposition in writing as a matter of record. At the same time in every stock exchange, on every board of trade and at every big market thousands of important transactions are completed daily by "word of mouth," and rarely does one hear of a dispute over the terms. Big deals in stocks, grain and cotton are made by telephone. There is no time to do it by letter. The telephone is rapidly encroaching on the field which in the old days was monopolized by pen and ink and later by the typewriter. As a time-saver the telephone is unequalled.

THE STORY OF THE STATES.

ADHERING, as it does, to the plain facts relative to the development of the Independent telephone movement, TELEPHONY's series, "The Story of the States" could not be otherwise than gratifying to the reader interested in the success of that movement. No matter how simply it was told, the story of the rise and growth of Independent telephony in all parts of the United States is of necessity a narrative of triumphant progress, for all over the Union the people have set their stamp of approval on the enterprises which aim to do away with a hard-handed monopoly and establish another source of supply for that greatest of modern inventions—the telephone.

It is with a natural pride that TELEPHONY reports that the series of articles dealing with the Independent movement in the various states has aroused new interest in telephone affairs and elicited sincere commendation from telephone men themselves. Three states have been covered—Illinois, Indiana and Ohio. The responses from these three commonwealths prove conclusively that Independent telephone men appreciate the publicity given their successful struggles for recognition and their wonderful achievements in this important line of commercial and financial activity. And with it all, the fact should be borne in mind that all this they have accomplished in the short space of little more than a decade. When one realizes that, comparatively speaking, it was but yesterday that the Independent movement was born, the results are nothing short of marvelous. What is more to the purpose, too, when it is also realized that the future offers prospects of greater success even more brilliant than those that have encouraged the pioneers in the movement in the past, one is impelled to believe that the day is not far distant when these achievements even will seem insignificant and commonplace indeed. However, this publication will always be more than willing to revise its history of the states and to report the phenomenal Independent growth in order to keep pace with the development of this young giant of enterprise. After all, the showing at the present day is startling enough for all acquainted with its sturdy battle against a cruel and unscrupulous monopoly like the Bell octopus.

In this issue TELEPHONY tells the story of Independent telephony in Michigan. As announced at the beginning of the series it is our purpose to cover a state every month. In May Iowa will be selected and in the June number the state of Wisconsin will be covered.

In telling the story of Illinois, Indiana, Ohio and Michigan, TELEPHONY has given the latest authentic statistics showing the number of Independent exchanges, number of subscribers, miles of toll lines, capitalization, illustrations of the principal exchange buildings and manufacturing plants which supply the Independent operating field, and portraits of leading telephone men in the state, as well as a history of the state organization and of the progress of the movement in that state.

To collect this data is no small task, and TELEPHONY wishes earnestly to request Independent telephone men in all the states to co-operate in making this series complete and up-to-date by sending in all information bearing on the movement in their respective localities. By so doing they will not only insure their state receiving its just due, but they will aid the movement generally, for it is plain that the more truthful publicity given the Independent telephone movement the more encouraged its friends and supporters all over the country will become, the more pride will they take in their undertaking and the greater will be the general success of the entire industry. For that reason TELEPHONY invites and urges Independents to forward data as soon as possible relating to their companies, photographs of exchange buildings owned by operating companies and all general information they may possess which would aid in preparation of "The Story of the States" and making the series complete so far as their own locality is concerned.

The recital of well won battles inspires confidence and courage in others, and therefore "The Story of the States" should have an influence for good throughout the field. It gratifies those who have passed through the fire to know that their efforts are appreciated and imbues all others with an enthusiasm that carries them on to success. Letters received from all parts of the field furnish convincing proof that this series is bearing fruit. It is in line with TELEPHONY's general plan to assist the Independent movement to the utmost, and it is a cause for genuine gratification to feel that these efforts are recognized and yielding the results desired.

In closing, however, TELEPHONY again urges the co-operation of Independents in supplying the information required to make "The Story of the States" complete.

Remember, if you want your own state properly represented the least you can do is to supply the information about the development of your own particular locality.

RETARDING TELEPHONE GROWTH.

EXCEPTING in localities where the Independents are pressing it hard for business, the Bell companies are not trying to extend telephone service. In several cities the companies which pay tribute to the trust are reducing their construction forces and discharging many employes, including solicitors, line builders, etc. The Bell gives as a reason the phenomenal rise in the price of copper, affirming that it is more profitable to be contented with the telephone subscribers it now has than to seek new patrons and incur the expense of making additional connections. In Peoria, Illinois, for instance, the Central Union Telephone Company recently discharged twenty men, and reduced its construction and maintenance departments materially. When asked for an explanation a representative of the company

frankly said that copper had gone up 300 per cent, and made the construction of new lines too expensive. It is said the Bell management has been pursuing the same policy throughout the country with the exception of the Pacific coast, where the reconstruction of San Francisco has increased the demand for this kind of labor.

This is a characteristic of all trust methods. It is in line with the Bell policy from the inception of the telephone business, and proves conclusively the statement oft-repeated that the Bell has never done anything to popularize the telephone if possible to avoid it and especially if an outlay of money and a temporary reduction of profits were entailed. The Independents have always argued that so long as the Bell had a monopoly, and there was no competition of any description, the development of the telephone was slow and due solely to the natural growth of the country. The take-all-and-give-as-little-as-possible policy of the Bell apparently is in force as strong as ever. If the people want more telephones the Bell is making them wait until the copper market is right—that is, unless some active Independent company is in the vicinity ready to take advantage of the Bell's dog-in-the-manger line of action. Incidents like that reported from Peoria show that the Bell is the same old grab-all octopus and is pursuing the same old tactics in ignoring the public's rights.

SUB-LICENSEE BORROWING.

THE issuance of new stock has been a prominent feature of the Bell monopoly's course of activity of late. It is estimated that seven of the subsidiary companies of the American Telephone and Telegraph Company have recently authorized the issuance of new stock to an aggregate of $20,924,166, of which all but $811,200 will have to be paid for by subscribing stockholders before the expiration of 1907. The share of the present company in this financing will be $8,503,000. In the case of five of the seven companies the new stock was authorized after the opening of the new year, while with the other two, the Southern New England and the New York and New Jersey, the authorization was made so late in December as to bring the payment dates entirely within the current year.

MAINE INDEPENDENTS ORGANIZE.

THE Independent telephone movement has received a decided impetus in New England by the organization of a state association in Maine. In all of the New England states the opposition to the Bell monopoly has met with increased encouragement from the general public since the Boston franchise was granted to the Independents, and the prospects are excellent that a closely knit group of associations will be in operation in the near future.

In response to a letter sent out by M. E. Crow, of Houlton, the Independent men of Maine met at Lewiston on Wednesday, March 20, and formed the Maine Independent Telephone Association, and elected the following officers: F. E. Ebersole, president; W. H. Lurvey, vice-president; H. S. Russ, treasurer; M. E. Crow, secretary. C. P. Chandler, F. L. Ames and Dr. Brehaut were selected as members of the executive committee. Considering the previous attempts at organization the meeting was a decided success, and, besides those present, a large number who were unable to be present expressed themselves as very favorable to the association by writing letters agreeing to join the organization.

The State of Maine has more Independent telephones than the New England (Bell) company, taking into consideration the Independent companies that are under contract with the New England companies, and as soon as the association has time to interview these companies that are so under contract, it is believed that they will withdraw from the New England company and give their support to the Independent movement.

The following were present at the meeting: H. S. Russ, Mt. Vernon; Elmer E. Daicey, Lewiston; W. H. Parsons, Livermore Falls; B. N. Lewis, Lisbon Falls; A. M. Fogg, East Hebron; E. A. Ebersole, Portland, Maine; J. S. Wells, Providence, R. I.; H. S. Hartford, Standish; G. R. Armstrong, Farmington; D. R. Smith, Bethel; W. H. Lurvey, West Paris; F. E. Ebersole, Portland, and M. E. Crow, Houlton, Maine.

THIS IS DIFFERENT.

THE Bell company makes a great stir when it is successful in purchasing some Independent system—a great hubbub is raised in Boston, and the news is spread broadcast that the Independent movement is going to the "bow wows." The Bell press bureau works overtime and sends out its paid stories to all points of the United States. The same story goes out when any Independent company goes out of business, which, by the way, rarely happens. The following item from a Lawrence, Ohio, newspaper is just now going the rounds:

TELEPHONE COMPANY QUITS.

The Lawrence Telephone Company is now a thing of the past, and passed out of history very quietly and without a struggle. The ending was so quiet that it has not become generally known that the Lawrence company is no more.

The decline had been gradual, until it breathed its last. The switchboard ceased operations, and the work of tearing down and packing up the switchboard began.

The work was in charge of Mr. Hall of St. Louis. The cables and wires were torn down and sold for junk. We are informed that some of the equipment was shipped to Indianapolis.

To show the falsity of this Bell press bureau item we append a letter from Mr. R. A. Knapp, general manager of the Home Telephone Company of Ironton, Ohio. Mr. Knapp says:

"The enclosed clipping regarding the Lawrence Telephone Company, which has belonged to the Bell company for the past two years, is just another case of where the Bell press bureau spreads the report that another Independent company has gone to the wall. These reports are sent out to keep people from going into the Independent telephone business. The Lawrence company has belonged to the Bell for the past two years. The service has been so wretched that all its subscribers have gone over to the regular Bell exchange. Every Independent telephone man should know these facts, so that no one will be misled by this Bell story of another Independent failure."

Mr. Knapp's letter shows this case up in its true light, and TELEPHONY believes that most of the Bell stories of Independent failures would show a similar condition if investigated.

BEFORE AND AFTER COMPETITION.

SINCE the Independents obtained a telephone franchise in Boston, all New England is waking up to the fact that the Bell monopoly is not quite omnipotent after all. The demand for telephone competition is spreading over all the New England states, and the Bell licensees in that section are threatened with the rude shock of realizing that they must reckon with the sentiment which is constantly growing among the people in favor of competition. The situation at Providence, Rhode Island, is dealt with on another page in this issue of TELEPHONY. The Boston victory is still fresh in the public mind. Throughout Connecticut where the Southern New England (Bell) Telephone Company has held sway so long, the demand for Independent competition is developing more strongly every day. Hartford, New Haven, Bridgeport and other cities are becoming aroused to the fact that they have been oppressed by the Bell trust is far too long, and the crusade for Independent franchises that will bring relief is in full blast.

No stronger argument in favor of competition in the telephone field has been made than that found in a state-

ment issued by Robert P. Lyon, of Hartford, in connection with a letter he has written to Morris F. Tyler, president of the Southern New England (Bell) Telephone Company. In this letter Mr. Lyon convicts the trust's licensee corporation of stifling legislation designed to afford the public relief from an arbitrary and oppressive monopoly. The statement in question shows the cost of telephone service before and after competition in nineteen cities throughout the United States, from Portland, Maine, to Los Angeles, California. In every instance the statistics prove the truth of the contention that competition not only has reduced rates, but has brought about better service and increased the number of subscribers.

But let the statement tell its own eloquent story. It follows:

	Under Monopoly. Figures Taken Just Before Competition. Business Rate, Private Line.		Under Competition. January, 1907. Business Rate, Private Line.			
19 Cities.	Bell Co. Rate Unlimi'd	No. Bell Co. 'Phones.	Bell Co. Rate Now.	Independent Co. Unlimi'd	Both 'Phones Cost.	Total 'Phones
Albany	$96.00	3,500	$48.00 (1200 calls)	$48.00	$96.00	11,300
Cleveland	125.00	4,200	54.00 (1200 ")	72.00	126.00	50,162
Columbus	84.00	1,800	54.00 (unlimited)	40.00	94.00	19,246
Dayton	72.00	2,000	54.00 "	40.00	94.00	13,300
Fall River	120.00	900	66.00 "	36.00	102.00	4,700
Grand Rapids	115.00	1,471	30.00 "	36.00	66.00	11,673
Indianapolis	74.00	2,300	54.00 "	40.00	94.00	19,973
Kansas City	96.00	9,800	48.00 (960 calls)	54.00	102.00	36,500
Lincoln, Neb.	84.00	2,000	48.00 (unlimited)	36.00	84.00	7,541
Los Angeles	96.00	10,000	(uncertain) "	48.00	.....	48,079
Louisville	96.00	3,200	42.00*(unlimited)	48.00	90.00	17,050
Minneapolis and St. Paul	120.00	4,800	60.00 (1200 calls)	48.00	108.00	42,494
New Bedford	120.00	815	66.00 (unlimited)	36.00	102.00	4,600
Portland, Me.	84.00	2,500	42.00 (840 calls)	42.00	84.00	6,950
Rochester	94.00	1,700	48.00 (1200 calls)	48.00	96.00	17,800
Syracuse	96.00	1,600	60.00 (unlimited)	48.00	108.00	11,850
Toledo	72.00	2,500	54.00 "	48.00	102.00	15,000
Trenton	100.00	2,000	60.00 "	36.00	96.00	9,000
Wilmington	97.50	750	72.00 "	36.00	108.00	11,000

* Two party presumably, although in fact these lines are individual, unlimited

By adopting the latest telephone apparatus the Independents have forced the Bell in these cities to make improvements in its system and show the public more consideration than it ever has before. "Competition is the life of trade," and the above statistics prove it.

OHIO TELEPHONE CONVENTION.

As the April issue of Telephony goes to press the annual convention of the Ohio Independent Telephone Association is in progress at Columbus. The convention, which opened at the Hotel Hartman, March 28, promised to be one of the most successful ever held in the Buckeye State, and that is saying much, as the association, led by Mr. Frank L. Beam, has always had helpful and enthusiastic meetings. The list of delegates includes the best known Independent telephone men of Ohio, and the program is especially interesting.

A full report of the Ohio convention will be found in the May issue of Telephony.

THE NEWS BY TELEPHONE.

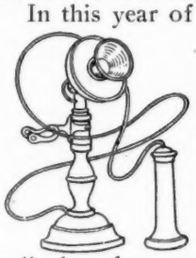
As a general thing the telephone service in the United States is much superior to that obtained in Europe, but once in awhile the old world adopts a new idea even before it is tried in America. For instance, Budapest, the capital of Hungary, has the only newspaper in the world which telephones instead of printing its news. Free of cost this journal, which is called the Hirmondo, installs a telephone in the subscriber's house or flat, and from its central office the news is announced by a clear-speaking elocutionist, who precedes each item with a general call. It is an all-day service, beginning at nine in the morning, when the correct time is sent to all the subscribers. The program of public events, meetings and the like for the day is announced and at regular intervals the movement of prices on the stock exchange. At 12 o'clock the news of the day at home and abroad is telephoned to subscribers in a distinct and succinct narrative. To while away the post-luncheon hour the subscriber may take up his receiver and listen to the recital of an original and complete short story by an accomplished raconteur. From 4:30 to 6:30 subscribers are in electrophonic connection with the musical performance of the famous Houved military band. From 7 until 11, on five nights in the week, the subscriber, sitting in his own house, may enjoy the music and singing of the Grand Opera House. On the other two evenings in the week he commands the performance of the Gypsy band at Budapest's leading cafe. The cost of the complete service, including all extra attractions, is not quite one dollar per month.

THE TELEPHONE IN HOTELS.

An illustration of how rapidly a new device may come into general use is shown in the enormous growth of the telephone as adapted for hotel purposes, says the Hotel Monthly. It is only about ten years since the first hotel adopted the telephone-in-every-room idea. It was a daring innovation, and for three or four years doubts were gravely expressed as to the efficiency of telephone service. In the year of 1900 the use of the hotel telephone may be visibly expressed in the first accompanying illustration, which will indicate very few hotels with this service. In 1901 they came into more general use, and the growth is expressed in the second illustration. In 1903 the number of hotels using the telephone had practically doubled over the previous year, and its relative use is expressed in the third illustration. Now the growth of the telephone comes in with leaps and bounds,

and in 1904 we find its use as expressed in the fourth illustration. Now we are coming to its very general use in hotels large and small throughout America, and in 1905 we find its relative importance expressed in the fifth illustration. The growth continued at an enormous rate, until in 1906, a majority of all the hotels rated as first class, and a very large number of hotels rated as second class are equipped with a telephone in every room, telephone exchange in the hotel office with both local and toll connections. The growth in the six years since 1900 is expressed in the sixth illustration.

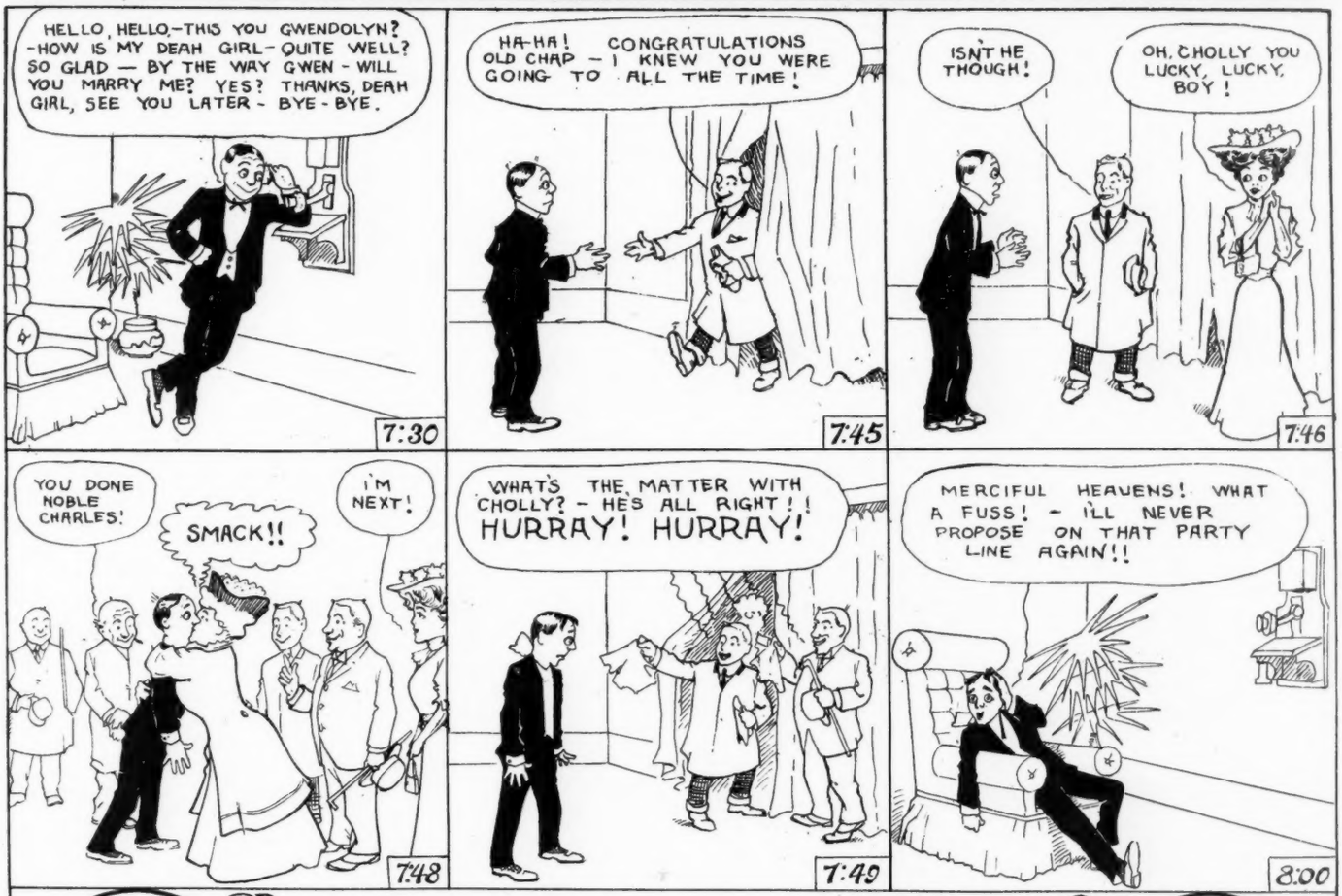
In this year of 1907 the editor has visited a hotel equipped with more than one thousand telephones, and there are dozens of hotels that have more than five hundred telephones. The telephone has become the pulse of the hotel, its wires leading to every room, every department, and to the outside world, and bringing the hotel office into verbal communication with every part of the house, thereby relieving the messenger service and expediting the general service to a perfection that was not dreamed of ten years ago. The present status of the telephone in hotels as compared with only seven years ago is shown in the comparison of the first and seventh illustrations.



The body of a small deer hanging from a telephone wire twenty-five feet above the ground and midway between two poles was the strange sight viewed by Supervisor Knowles and William McClaren near North Fork, California. They offer the explanation that the little deer had been picked up by an eagle which, flying away with the carcass, struck the wire in its flight and lost its prize.

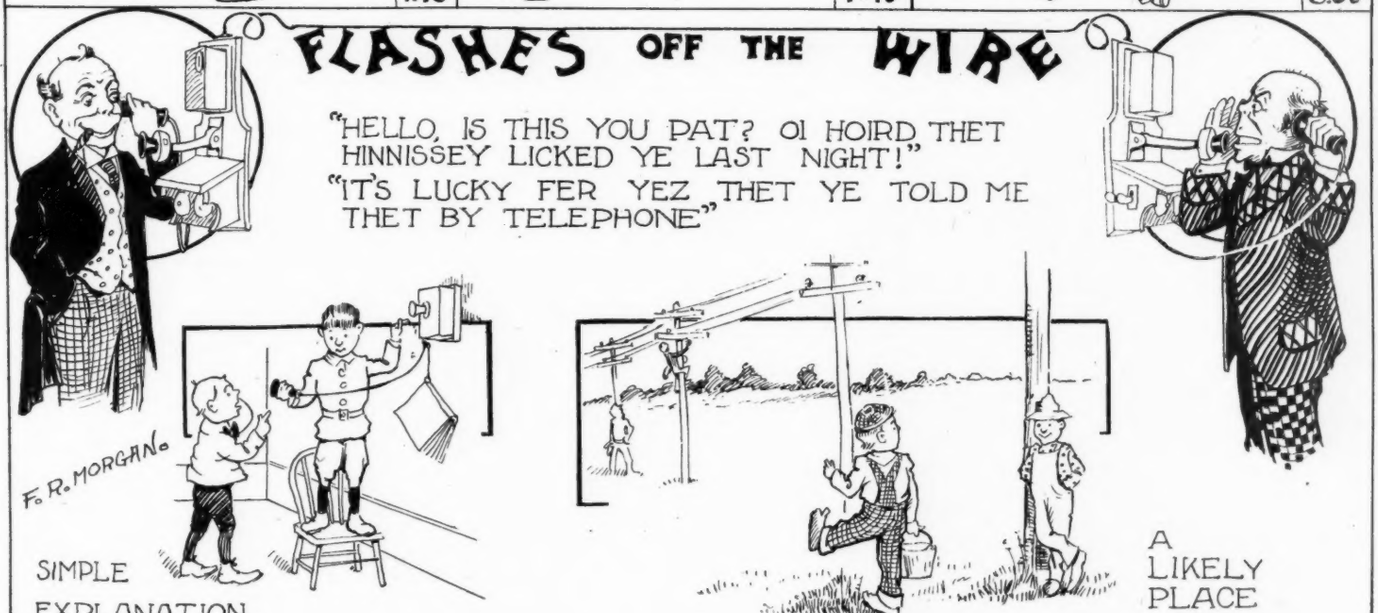
THE TELEPHONE AS · PICTURED · BY TELEPHONY'S · CARTOONIST

CHOLLY PROPOSES - HIS FRIENDS "RUBBER" ON THE LINE


HELLO, HELLO,-THIS YOU GWENDOLYN? -HOW IS MY DEAH GIRL- QUITE WELL? SO GLAD — BY THE WAY GWEN - WILL YOU MARRY ME? YES? THANKS, DEAH GIRL, SEE YOU LATER - BYE - BYE.
7:30
HA-HA! CONGRATULATIONS OLD CHAP - I KNEW YOU WERE GOING TO ALL THE TIME!
7:45
ISN'T HE THOUGH!
OH, CHOLLY YOU LUCKY, LUCKY BOY!
7:46
YOU DONE NOBLE CHARLES!
SMACK!!
I'M NEXT!
7:48
WHAT'S THE MATTER WITH CHOLLY? - HES ALL RIGHT!! HURRAY! HURRAY!
7:49
MERCIFUL HEAVENS! WHAT A FUSS! - I'LL NEVER PROPOSE ON THAT PARTY LINE AGAIN!!
8:00

FLASHES OFF THE WIRE

"HELLO, IS THIS YOU PAT? OI HOIRD THET HINNISSEY LICKED YE LAST NIGHT!"
"IT'S LUCKY FER YEZ THET YE TOLD ME THET BY TELEPHONE"



SIMPLE EXPLANATION.

"SAY CHIMMY HOW DOES DIS TING WORK?" AW, IT'S EASY - PUT DAT RUBBER HORN TO YER EAR WID ONE HAND AND TALK WID DE OTHER.

A LIKELY PLACE

"WHAT CHER GOIN' TO DO WID DE PAIL BILL?" "GOIN' TO COP SOME CURRANTS - ONE OF DOSE GUYS SAID WOT DE WIRES WAS FULL OF 'EM!"

QUESTIONS AND ANSWERS

By J. C. Kelsey

BEFORE starting on regular questions, I want to correct a statement made last month. The Keystone Telephone Company maintains a reserve of $4.00 per year, and in some way I gave the amount as $4.08 per year. It does not really matter, as the eight cents did not make a great difference in the few results that depended upon it. It is very gratifying to me particularly to find that the second largest Bell company maintains a lesser amount, because at one time I was called upon to demonstrate that such an amount was fair. The Chicago Telephone Company has had twenty-three years of experience, and as yet had no great call for reserves. When its renewal of switchboards took place the old magneto systems were few, and the old magneto material was sent into numerous provinces. In the past twenty-three years the Chicago Telephone Company has had no great reason for calling upon a renewal reserve fund, and I am willing to stake something that their total used and unused reserves have revealed no more than $3.00 per telephone per year.

All I am after is facts. The Bell interests have howled loudly about depreciation, and reserve for the same. Much of their criticism has been very much deserved, too. A reserve is necessary, and without it a company is no better off than a man who spends all his money. His friends will leave him, and some benevolent county home hands him a hoe "in the good old summer time" and he breaks his formerly unused back over a row of county potatoes.

The public would have welcomed any institution at any price, to get rid of the unspeakable conditions which were common prior to the Independent movement. The public hates monopoly, and so should any man in the telephone business. Were it not for the Independent movement, there would be but few first-class telephone engineers to-day, nor would there be any periodicals. Witness the number of them now. Even the Bell runs a few in self defense, and they are miserable apologies, too. And a man draws more at the end of the month than the maximum $85 that was formerly supposed to help him raise a family and be loyal to a most contemptible system.

The Independent movement has done all this, but it is not well to stand still. We must push onward in the good fight for better telephone service. All Independent companies need to put aside a reserve for new equipment and rebuilding. It is the practical, sensible thing to do and should be given attention by managers and those looking after the financial side of the operating exchanges.

I have noted with interest the questions and answers relating to phantom circuits, as I have been working some with them myself in connection with toll lines. I first tried the inductive bridge plan with poor success. Then I wound some coils as follows: I took two wires and wound them side by side on an annealed iron core, connected one inside wire and one outside wire together for the middle point and bridged the remaining wires on the toll line, thus making an inductive bridge of about 800 ohms for the toll line, and a non-inductive circuit for the phantom, according to my theories.

This gave a good talking circuit and was all right until any one of the three circuits was connected to a line that had more or less of a ground, when the whole system was thrown out of balance. This is poor practice for toll lines, so I then tried the repeating coil scheme. The only trouble we have with this is in ringing through two repeating coils, and this is so uncertain that we have had to discontinue the use of the phantoms until we find a way to obviate the difficulty. I have tried both the regular repeating coil and those with the four wires wound together, with the same results. We use a pole changer. I see that some of the Morse circuits use two repeating coils in the circuit in the same manner. Do the power ringing machines ring through them all right? If so, is it due to the speed or the form of the wave? Could you show the form of the wave after the pole changer current passed through the first repeating coil and after it passed through the second one? Would it alter the wave form so as to help or hinder if a condenser was bridged across during ringing as with the Warner pole changer? Would a repeating coil with a ring core be better to ring through? Is the trouble owing to low efficiency of the repeating coils or, as one telephone man suggests, is it owing to some static effect in the coils? It seems strange that it will ring through at times, but cannot be relied upon. I have made a relay to bridge across the switchboard side of the coil, which throws ringing current on the line side of the coil when the operator rings on the line, but do not like to add complications. I would appreciate a reply if you can offer any suggestions.—H. T. D., Ohio.

The same old story about phantom circuits. Once a man criticized me for saying that duplexing was practically impossible, and offered to show me. But he never showed me, and he does not dare to. I have seen the devices made by this man fail, and I repeat that duplexing is at best uncertain. It can be done nicely in cables, but of the average overhead line, beware. The inductive bridge plan is worked fairly well by some people. But it stands to reason that any connection with a line, in a grounded condition, will make all the lines more or less troublesome.

The repeating coil scheme is all right, if your lines fit the condition. The great trouble is ringing, but if the coils are properly designed, you should have no trouble. Power machines usually ring well, because the pressure is not pulled down, when others ars using the machine. Possibly your generator is overloaded at times, and gives you the impression that the repeating coils were to blame. The wave form is not changed by going through a repeater, except that the area of the wave is less. You lose energy passing through two coils. A condenser would tend to flatten the wave out. A repeating coil with a ring core is best for ringing purposes. Possibly your trouble is more due to low efficiency coils. There is certainly no static effect which would make your conditions variable. The only variable condition is the source of ringing current.

Your idea of ringing by the first repeater is a good one. The process is usually simple, and whatever complications you find should be offset by the increased certainty of ringing. I repeat, the telephone world has not yet found a cheap and serviceable duplexer. I am waiting to be shown.

How is one to manage it with magneto party line circuits, where a grounded line is connected with a metallic selective one, in order that the alternating ring-off current does not ring the several party bells on the selective circuit? You would greatly oblige me by giving full particulars.—B. B., Iowa.

A low resistance clearing out drop, 350 ohms. or even 100 ohms., would help to serve your purpose, and would not seriously interfere with your transmission.

Reading in Kempster B. Miller's "American Telephone Practice" I came across the statement that the old Morse telegraph relay answered the purpose very well in telephony in places where space was not limited. Does this mean that the Morse relay, or any other, can be used to help out the current of the line, by working a local station circuit just as in telegraphy, and if not, what does the relay do in telephony?

How far can one safely figure on getting good telephone service over a ground line—that is, with a single wire and ground—supposing that there are no opposing influences at all, such as trolley, or other high-voltage lines—the only possible interference being

the telephone line would have to cross a railroad track with two telegraph systems, having about twelve to fifteen wires apiece? How far would you expect to ring and talk over a ground line with not more than six or eight telephones on the line—line to be carefully built, with No. 12 BB galvanized wire and having large ground plates (copper) at both terminal stations and ground rods at intermediate stations, using 1,600-ohm bridging telephones, four-bar generators and standard transmitters and receivers? Can the telephones be made to transmit and receive more satisfactorily by using more battery, and is there any way of applying extra current with risk of overheating transmitters?

Is there any way of fixing a receiver so it will speak loudly enough to be heard all over the room or by several people and dispensing with the necessity of holding it to the ear? Is there any device on the market that does this and what's the price?

Suppose a ground line is built so as to circle around and finally bring the end back to the starting point—would it be possible to use it as a full metallic line just as if the wires had been strung right along on the same poles all the way from one terminus to another, or would the impossibility of transposing the opposite sides of line make it impossible to use the line like full metallic? The length of the line would be 94 to 100 miles and the railroad telegraph lines would be crossed twice in all.

One of our lines is four miles, one is twenty-eight miles and we will soon build one twenty-five miles, but eighteen miles of the third line will be over barb-wire fence. Are there any testing instruments that, being kept in central office, would enable us to tell when a circuit was broken and how far from the office? Are the operations and calculations simple enough for a man of ordinary education to carry out, without the use of higher mathematics? What is the cost of cheapest reliable equipment of this kind?

What would you think of the possibility of getting satisfactory service over a twenty-five-mile line, eighteen miles of it being barb wire and balance pole line of No. 12 galvanized BB wire? The eighteen miles is on a railroad right of way fence, very solidly built; ties for posts. Our climate is dry; when it rains, it rains and gets through, but there is little moist, drizzly weather, not over thirty days a year, and after rain it dries up quickly. How would it work to insulate the barb-wire by painting a strip, two or three inches wide, right across the post, in path of wire, with some heavy oil? Dry wood is an insulator and so is oil. The oil would keep water or moisture from gathering or standing near wire or staple and would also keep the wood touched by wire and staple dry; and I don't see why the scheme wouldn't be an unqualified success, unless the oil should allow the alkali dust blown by the wind to stick to the oiled strip and make a crust that would be a conductor, but even then the alkali crust would only extend to the edge of the oiled area and the dry surface beyond the oil would insulate it and in rainy weather the crust would wash right off.

The books say series and bridging telephones won't work together, but we have two eighty-ohm series and three 1,600-ohm bridging working first-class, both ringing and talking, through a little Western Union style switchboard. Is this because we have so few instruments on the line?

How close together can we put our line wires on poles without danger of cross talk? We put insulators nine inches apart on poles, but the sag lets them come within four inches, in center of span.—C. W. G., New Mexico.

ANSWER: The word relay in telephone practice does not mean exactly what it does in telegraphy. When one speaks of relays, one is reminded of something being passed on, refreshed and strong for new action. Something like a relay race, where four athletes each take turns in running a mile. Or in telegraph practice, the contacts of a relay or magnet close, and thereby close another circuit. For instance, a Chicago operator depresses a key. A relay at Cleveland is operated which closes the Cleveland-Buffalo circuit, which has a relay, which in its turn closes the Buffalo-New York circuit. So that the New York operator gets the dots and dashes of the Chicago operator directly. A through circuit is too long for the size of the wire being permissible.

The telephone common battery circuit first used a lamp directly in the main circuit, so that the battery flowed through the line, lamp and telephone. As each circuit has different resistance, it became necessary to use an electromagnet, and use its contacts to light a lamp when operated. In other words, the electromagnet relays the signal into the exchange.

There are some grounded lines giving service over 300 miles of iron wire. No interference would come from the crossing of the telegraph lines. You should ring and talk over the line you describe, with seven or eight subscribers, very nicely, for at least a hundred miles. Telephones could be made to talk better with more battery, but you are limited by the heating of the transmitter. All battery has to go through the transmitter, so, you see, you can't apply extra current.

There is a loud speaking telephone, called the Aukophone, but it has disappeared from the market as far as I know. The telephones are not usable on ordinary circuits, and as a rule are made by some amateur who knows not the elementary rule of telephone engineering. I think you are destined to hold the receiver tight to your ear.

If you built your wire in a circle, and joined the ends, it would make no difference to your bridged telephones. You could use a metallic line just as well. You could transpose in the same old way, but, of course, the proper wires should be joined. Such a looped line would help matters considerably, because your telephones would have two individual wires acting in parallel, and would halve the line resistance.

As far as testing instruments are concerned, I don't believe it would pay you to buy many testing devices for your system. You could get a Leeds and Northrup bridge, called No. 2, I think, for $100, which would enable you to make tests of all kinds. I have never seen the need of any higher mathematics anywhere. At one time I thought I might, and loaded up. But I loaded to no purpose.

Your service over the lines should be all right. The oil might help matters, but as a rule rain has no evil effect. I know of a fence line which gave good service for seven years. For crossings they buried a piece of No. 14 Okonite and it lasted through it all.

The books mean well regarding combined use of series and bridging telephones. If you crowd your game, you will find the books are right.

If your lines are all grounded, cross talk will creep in, whether your wires are nine inches apart or nine feet. Cross talk can happen between lines one mile apart, under test conditions. Way down there in Texas I believe you are on the right track. Try the fence posts. Try the oil. Let us know about it. The way for the rank and file to learn is to hear from such people as C. W. G.

How much more current output is there in a five-bar generator over a four-bar generator, both being the same make and type? Is there any advantage with a five-bar generator?—W. H. G., Michigan.

ANSWER: The output of a magneto generator is practically proportioned to the number of bars. Should you get .5 of an ampere from your five-bar you would find that a four-bar will give practically .4.

There is no advantage of a five-bar over the four-bar, except when one wants to have thirty subscribers on a line. The five-bar will maintain its terminal pressure better than a four-bar. The ratio of three-bar, four-bar and five-bar sets are about even.

Can you tell us how to get rid of cross talk on country (rural) grounded lines? We run about twenty-five miles on a six-pin cross arm, metallic on the pole pins and a grounded line on the second and fifth pins and the cross talk jumps from one grounded line to the other. We have a water pipe ground at central, seven-foot rod at the telephones, all 1,000-ohm bridging ringers come in to central on 100-foot No. 14 O K paired and twisted cable.

How can you connect a grounded line on to a metallic line? That is, we have a station that has the metallic and they want to be able to switch over on the farmers' line (grounded line) and have two ways of coming to central.—R. F. B., North Dakota.

ANSWER: You cannot get rid of cross talk on grounded country lines unless the members agree that only one line shall be used at a time. Nature never intended the earth to be used, because nature does not usually allow persons to get something for nothing. It's a poor game to tackle.

To properly connect your metallic line to the grounded lines, you should use a "ring through" repeating coil, one

of those large-sized coils with lots of iron and many turns of wire.

What is the brown looking sediment that collects on the crowfoot zincs of my gravity batteries? It doesn't seem to me that this action should take place. If not, what can I do to prevent it?

Should the copper elements of these cells be cleaned of the "coppery" substance which accumulates on it? Is there a book published that is devoted entirely to the care of primary cells? I have several books on the subject of telephony, but they only describe the different kinds of primary cells and give little or no information about caring for them.—G. F. D., Iowa.

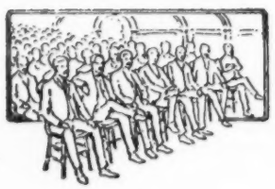
ANSWER: That brown looking sediment is due to the copper terminal. Simply clean the cells occasionally. I don't think you need worry as long as the cells are doing their work properly.

I do not know of any books entirely devoted to the subject of wet batteries. Books are usually so full of general matter that they usually have no space to tell a man some special thing he wants to know.

This is my last appearance with Questions and Answers. For fifty-one issues I have been before the readers of TELEPHONY, and I regard them as my own particular friends.

I have always been after the truth, for truth alone will give lasting benefits to the Independent cause. Monopoly signifies darkness and ignorance and death. Competition signifies light and knowledge and life. This is why Independent telephony is succeeding because it embraces what is dear to the intelligent mind.

I wish I could undertake fifty-one issues more, but I am compelled to give more time to other things, and am pleased to inform my readers that Henry P. Clausen will handle the query columns in the future. Mr. Clausen needs no introduction, and TELEPHONY is to be congratulated in securing him as technical editor.



TEXAS CONVENTION

Telephone Men of the Lone Star State Hold a Successful Meeting at Fort Worth.

By E. F. Gray

THE third annual convention of the Texas Independent Telephone Association was held at Fort Worth, Texas, February 21 and 22, 1907, and was well attended. The association was called to order at 10 o'clock a. m. by the president, Mr. J. C. Casler, of Fort Worth, who appointed Charles F. Speed to act as assistant secretary. The roll was called and responded to by representatives of the companies in attendance.

Representatives of the following manufacturing companies were also present: Wesco Supply Company, Fort Worth and St. Louis; North Electric Company, Cleveland and Dallas; Hopson Electric Company, Dallas; Central Telephone & Electric Company, St. Louis and Dallas; National Lumber Company, Texarkana; Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y.; Dean Electric Company, Elyria, O., and Kansas City, Mo.; Woods Electric Company, Houston; Zinc Oil Pole Company, Texarkana; Frank B. Cook, Chicago; Standard Underground Cable Company, St. Louis.

The International Independent Telephone Association was represented by W. J. Stadelman, of Sioux City, Iowa.

President Casler appointed the following committees:

Nomination—W. P. Johnson, Corsicana; C. W. Roberts, Abilene; E. M. Chamberlin, Greenville, and C. W. Emmer, Beaumont.

Ways and Means—J. B. Earle, Waco; C. F. Speed, Texarkana; A. A. Marrs, Dallas; H. H. Davenport, Hillsboro.

Constitution and By-Laws—C. C. Conroy, Beaumont; H. S. Mosley, Weatherford; C. W. Roberts, Abilene; T. A. Gould, Ennis.

Auditing—C. W. Macune, Jr., Sipe Springs; R. Armstrong, Weatherford; A. Smith, Weatherford.

Legislation—J. B. Earle, Waco; David Martin, Plano; H. S. Mosley, Weatherford; Sydney L. Samuels, Fort Worth; E. M. Chamberlin, Greenville.

On motion of J. B. Earle, which was seconded by E. M. Chamberlin, President Casler was added to each of the committees appointed. Mr. Earle, as chairman of the legislative committee, was then requested to read the bills now pending before the state legislature, and upon motion of Mr. Emmer, seconded by Mr. Stillwell, the bills were ordered mimeographed and a copy presented to each member of the association. Upon motion of Mr. Graham, seconded by Mr. Emmer, the president was instructed to telegraph a special invitation to all members of the association who were not in attendance. Upon motion of Mr. Emmer the meeting adjourned until 1:30 o'clock p. m.

AFTERNOON SESSION.

The meeting was called to order by the president, who introduced Mayor Harris, who welcomed the delegates in a pleasing speech, and spoke very highly of the service rendered by the Fort Worth Telephone Company. A response was given by Sidney L. Samuels of Fort Worth, who is a member of the association. Mr. Earle, chairman of the ways and means committee, made the following report: "Be it resolved, that the by-laws of this association relating to initiation fee be so amended that the membership fee of members be $1.00, and the annual dues be two and one-half cents for each telephone, and two and one-half cents for each mile of long distance pole line; that the manufacturers pay on the basis of 500 telephones; and that the association reimburse the delegates with their railroad fare." After considerable discussion, upon motion of Mr. Armstrong the matter was referred until the executive session. President Casler extended an invitation to the association to inspect the Fort Worth Telephone Company's plant. The invitation was accepted and 7 o'clock was set as the hour for visiting the central offices. Swift & Company and Armour & Company sent invitations to members to visit their plants. They were accepted and 8 o'clock Friday morning was set as the hour for starting.

Upon motion of Mr. Conroy, seconded by Mr. Mosley, it was agreed that any member failing to appear at the appointed hour be fined $1.00. The subsequent records showed that there was a full attendance.

At this point Mr. Thomas Sargent, the new manager at Shreveport, was introduced as a new member of the association. Upon motion, it was agreed that delegates accompanied by their wives be excused from the theater party, invitations to which had been mailed out by the manufacturers.

There was no night session. From 7 o'clock until 8 was

spent in visiting the exchange of the Fort Worth Telephone Company, which was found to be most complete and up-to-date in every respect. At 8 o'clock the delegates formed in double-file and marched to Greenwall's opera house to witness Tim Murphy's rendition of "A Corner in Coffee." At the close of the performance the march was again taken up and the delegates repaired to the Delaware Hotel, where a banquet was served. This banquet, as well as the previous entertainment, was furnished by the manufacturers.

FRIDAY MORNING SESSION.

The association met at 10:30 o'clock, with President Casler in the chair. After roll call those who were not members retired and the association went into executive session. The question of Mr. Speed's eligibility to sit in the executive session, owing to his connection with a manufacturer, was raised, and upon motion of Mr. Gould, seconded by Mr. Earle, the association unanimously voted to admit Mr. Speed to the session because of his connection with several operating companies. A report of the committee on ways and means was called for and the members submitted the following report: "Be it resolved, That the by-laws of this association, relating to initiation fees, be so amended that the membership fee of members be $1.00 and the annual dues be two and one-half cents for each telephone, and two and one-half cents for each mile of long distance pole line. No company shall pay less than $5.00 and any strictly Independent manufacturer shall be admitted to an honorary membership upon paying an annual fee of $12.50." Upon motion of Mr. Armstrong, seconded by Mr. Chamberlin, the report was adopted as read. Upon motion of Mr. Earle the manufacturers and their representatives were invited to the room to take part in the discussion of legislative matters.

The auditing committee made the following report: "We, the members of the auditing committee, have carefully examined the books of the secretary and treasurer and find that they have been very carefully kept and are correct in every detail."

The report of the secretary and treasurer for the past year was read and adopted.

The committee on legislation was called upon for a report but, being unsatisfactory to the association, the report was deferred until the afternoon session. Upon motion of Mr. Chamberlin the meeting adjourned until 2 p. m.

FRIDAY AFTERNOON SESSION.

After the meeting was called to order by the president Mr. Earle offered an amendment to the by-laws as follows: "Resolved, That all strictly Independent manufacturers and their representatives be admitted to all meetings of this association except on matters relating to the manufacturers, in which case they shall take no part to the extent of voting." Upon motion of Mr. Stillwell, seconded by Mr. Chamberlin, the amendment was adopted. Upon motion of Mr. Emmer, Mr. Stadelman was invited to discuss the matter of telephone magazines accepting Kellogg advertising. Mr. Stadelman expressed it as his belief that under the postal regulations magazines were compelled to accept legitimate advertising at the regular rates charged other advertisers. Mr. Smith, of the Transmitter, was present, and said the statement was correct, and that contrary to his wishes in the matter the next issue of the Transmitter would contain Kellogg advertising.

Upon motion of Mr. Templeman a committee of three, consisting of Messrs. Earle, Mosley and Templeman, was appointed to draft a new constitution and by-laws, to be presented at the next annual meeting of the association. The committee on constitution and by-laws for this meeting, through its chairman, Mr. Conroy, reported that to the best of his knowledge the proceedings of the meeting were in accord with the constitution and by-laws as they now stand. The committee was excused by the unanimous vote of all present.

The committee on legislation reported the following resolutions: "Resolved, That we, the Independent Telephone Association of Texas, in convention here assembled, do hereby petition the legislature not to pass the rate bill now pending, assuring that body that the rates allowed are not only too low to admit of reasonable profit, but, we assert, are below the actual cost of operation; and the passage of this bill will be confiscatory to our property and stop all development of the telephone business by both large and small companies over the state. The president is instructed to appoint a committee to attend the next meeting of the committee before whom the bill will be considered and discuss the matter with them."

"Resolved, That the Independent Telephone Association of Texas does hereby beg to submit to the legislature now in session that House Bill No. 24, undertaking to force the connection between our properties and those of the Bell company, we believe would be disastrous. We respectfully submit that this bill would tend to stop further development and would commit the telephone companies to a policy in vogue before the expiration of the Bell patents in 1895. This, we submit, is contrary to our Democratic principles as expressed in our last Democratic convention, as well as all previous conventions condemning monopolies and favoring competition. We beg to call the legislature's attention to the rapid development of the telephone field in the last few years since our home people have undertaken and are building lines in almost all cities and towns in the state, together with the farmer, or rural line business, of which our members have been such extensive builders."

The report was unanimously adopted as read and J. B. Earle was appointed as chairman of the committee to appear before the legislative committee, with the privilege of selecting the remainder of the committee.

The committee on nominations brought in a majority and a minority report. After some discussion, during which it was found that this method of nominating officers was contrary to the constitution, it was agreed that the report be rejected and the committee excused.

Nominations for president were then called for, and the name of J. B. Earle, of Waco, was presented. There being no further nominations, upon motion of Mr. Terry, seconded by Mr. Gould, Mr. Earle was unanimously elected. Mr. Casler vacated the chair in favor of Mr. Earle, who addressed the meeting in a forceful as well as entertaining manner, and he was most enthusiastically received. E. M. Chamberlain, of Greenville, was nominated for first vice president; C. W. Roberts of Abilene, for second vice-president; C. W. Emmer, of Beaumont, for third vice-president, and C. A. Shock, of Sherman, for secretary and treasurer. There being no opposition each was elected in turn to the office for which he was nominated. It was moved by Mr. Emmer and seconded by Mr. Graham that the association approve a common carriers' bill if one could be framed to suit the needs. This motion was laid on the table until the next meeting of the association.

It was moved by Mr. Casler and seconded by Mr. Thomas that the legislative committee go to Austin uninstructed. The motion carried.

Mr. Speed of the Stromberg-Carlson Telephone Manufacturing Company was allowed the floor and stated that he had prepared a negative of all the Independent telephone lines of Texas and that he desired to make the association a present of the same. Mr. Speed was given a special vote of thanks by the association and arrangements were made whereby any person desiring a copy of this map could secure the same by remitting $1.00 to the secretary and treasurer, C. A. Shock, at Sherman, Texas.

A committee consisting of Messrs. Emmer, Gould and Templeman was appointed to draft suitable resolutions.

W. J. Stadelman, special representative of the International Independent Telephone Association, was called on for an address and responded with an interesting discussion of the value of advertising. He especially urged all Independents to display the shield emblem at all times and in all places.

A special resolution was introduced and passed, adopting the shield in red, white and blue as the emblem for the state association, and Independents were urged to use it freely, especially at all pay stations.

A special vote of thanks was tendered Mr. Stadelman and the International association for the assistance rendered throughout the meeting. Mr. Stadelman responded by stating that he had never attended a meeting in which more interest was taken, and it made him feel as if he would like to be one of the Texas association. By consent of those present, Mr. Stadelman was then made a member of the state association.

Mr. Earle was elected a delegate to the annual convention of the International Independent Telephone Association to be held in Chicago June 4-6, 1907.

Nominations for membership on the executive committee were called for, and the names of J. B. Earle, Waco; T. A. Gould, Ennis; J. C. Casler, Fort Worth; H. S. Mosley, Weatherford, and W. P. Johnson, Corsicana, were presented. Upon motion of Mr. Templeman these gentlemen were unanimously elected. The time and place for holding the next meeting was left with the executive committee.

The committee on resolutions reported as follows:

"Be it resolved by the Texas Independent Telephone Association that we hereby express our full appreciation of all that has been done to make this the best meeting in the history of the association and especially do we want to thank the mayor and citizens of Fort Worth for their kindly welcome; the Fort Worth Telephone Company and their manager, Mr. Casler, for their many acts of hospitality; the Confederate Veterans, for the use of their room; the newspapers, for the amount of space so generously used to report our meetings; Messrs Swift & Company and Armour & Company for the consideration granted our delegates in showing them through their establishments; the manufacturers and their representatives who contributed so liberally to the entertainment of the delegates and all others who in any way assisted in making our stay in the city so pleasant."

After voting unanimously to adopt the report of the committee, the association adjourned subject to the call of the executive committee.

OFFICIAL BULLETIN NUMBER NINE

Issued by the International Independent Telephone Association

AS EXPLAINED in the special bulletin, there is no cause for alarm among the Independent interests of the country, regarding the possible purchase by the Bell of the properties controlled by the United States Independent Telephone Company of Rochester. Should the Bell secure these, it would merely mean a temporary loss to the Independents of only about two-thirds of one per cent of the total number of Independent telephones in use in the United States. Conditions are such that there would be very little difficulty in securing new franchises in all of the places affected by the transaction, and installing Independent exchanges to take the place of those purchased.

In all probability, however, the Bell will be legally restrained from "absorbing" the U. S. I. properties. On February 27, the attorney-general of New York state began action against the Bell on anti-monopoly grounds to prevent the proposed merger. Bell officials admitted, at hearings held on March 7 and March 18, that negotiations were practically completed for the Bell to take over the U. S. I. properties. A temporary injunction has been secured, pending the attorney-general's decision. It is more than probable this injunction will be made permanent, but whatever may be the final outcome of the matter, the Independent interests of the country have no cause for serious alarm.

The convention will be held at the Auditorium Hotel in Chicago June 4, 5 and 6. The committees will meet on June 3. Full details later.

The convention program is being prepared. Officers of affiliated associations are requested to send in names of speakers and candidates for the various committees, so that every section of the country may be properly represented on the program. Suggestions regarding topics to be discussed are also invited from all interested.

Associations should select their delegates and alternates as early as possible, making prompt report of same to this office, so that proper credentials may be issued. Don't put this off till the last moment.

Officers of the various associations are reminded that under the present constitution, the order of business provides for *written reports* from associations, in response to the roll call. Active work to bring the statistical information for such reports up to date should begin immediately. *It is a matter of vital importance. Don't neglect it.*

The attention of officers of state associations is directed to the stand taken by the International association at the last convention, regarding Bell-owned equipment manufacturing companies, and to the importance of *not permitting such companies* to exhibit at conventions.

The map department has made exceptionally good progress during the past few weeks, due to a more ready response on the part of local companies to requests for map data. We appreciate this, and trust it will continue, in order that a good exhibit of maps can be made at the convention. Remember, you are serving your own interests by making it possible to include your company's lines in our state maps; so if you operate toll lines, send us a sketch of same without delay. Don't make it necessary to write you four or five times for this.

We have had occasion recently to request considerable information of a statistical nature from various companies, and wish to extend our thanks for the alacrity with which our letters, with scarcely an exception, have been answered.

It will be necessary to secure further data of this kind, and we hope for a continuance of this prompt attention to our requests. It saves time, and lessens the expense of the work.

The International and its affiliated associations are maintained for the purpose, among other things, of gathering and disseminating information regarding the Independent movement. Protect your interests, and save yourself work by referring inquiries to association headquarters, where they can be properly investigated.

The importance of local companies displaying the "Shield" at every opportunity, becomes greater with the progress of the movement. It is essential that our emblem be given the widest possible publicity, in order that the public may be fully educated to the extent and unity of the Independent system. In order to get your share of the

business, you should see that the "Shield" is shown at all of your exchanges and pay stations. The association's supply department is maintained to furnish everything in the way of "Shield" advertising to Independent companies at the lowest prices consistent with good quality. Full particulars cheerfully given. Help educate the public to look for the "Shield."

Under a resolution adopted by the executive committee, provision was made for honorary membership in the association at an annual fee of $25. The following gentlemen have already availed themselves of this privilege, and qualified for such honorary membership:

C. Y. McVey	E. L. Barber	Arnold Kalman
Jas. B. Hoge	W. F. Laubach	Charles West
Chas. S. Norton	C. E. Tarte	G. R. Johnson
C. W. Kline	M. B. Overly	Edwin Matthews
Chas. E. Sumner	Hugo A. Koehler	Jas. S. Brailey, Jr.
W. C. Polk	Joseph J. Heim	A. C. Davis
E. W. Moore	J. G. Splane	A. V. Hageman
Frank H. Woods	Robt. C. Hall	Morris Taylor
Edmund Land	W. J. Stadelman	H. C. Jones
Arthur W. Hoge	Edward A. Faust	J. B. Earle
Frank L. Beam	W. J. Bowron	B. S. Barnard
Chas. C. Deering	H. B. McMeal	F. N. Kondolf
Edw. E. Clement	S. C. Thayer	J. B. Rhodes
O. C. Snider	W. C. Handlan	W. B. Woodbury
Max Koehler	Arthur B. Taylor	E. H. Moulton
Ernest L. Clark	B. G. Hubbell	W. Gilbert Thompson
Theodore Gary	C. E. Wilson	Wm. H. Bryant
W. H. McDonough	P. C. Holdoegel	W. P. Bowman

THE USUAL BELL SERVICE.

We are indebted to Mr. J. B. Rhodes of Zanesville, O., for the following cartoon which recently appeared in the

Why Is It?--Who's to Blame?

Zanesville News. The cartconist of the News evidently does not think much of the service given by the Bell company.

The date of the Missouri Independent Telephone Convention has been changed to May 9, 10 and 11, and will be held at the Coates House, Kansas City. The Missouri Independents are bending every effort to make this the biggest convention ever held in the state.

THE PROVIDENCE (R. I.) SITUATION.

The people of Providence, R. I., are making a strong demand for telephone competition so that the Bell monopoly which has held the field so long will be compelled to give good service and increase its installation. The Home Telephone Company is seeking a franchise from the city council, and the prospects are considered good for favorable action as the people are organizing to urge the passage of the ordinance. More than 26,000 citizens have petitioned the council that a franchise be granted to the Home company, while 66 local councils of union labor, representing 24,928 wage earners, have represented to the council that they wished competition in the telephone business. This makes a grand total of nearly 51,000 citizens who have thus far expressed themselves in favor of the contentions of the Home Telephone Company.

Of course the Bell is making a vigorous fight against the new company. The Providence Telephone Company, the Bell sub-licensee, has filed a counter petition purporting to contain 1,000 names, but investigation showed the petition of objectors to be a weak excuse. An examination of that petition showed but 757 names, 65 of which were not in the directory, 51 of which had signed the Home petition, 40 of which had signed their names in two or three different places and 30 denied their signatures or claimed they were tricked into signing by representations that they were signing for the Home Telephone Company.

A review of the Providence telephone situation shows why there is such a strong demand for an Independent company to compete with the Bell. In twenty-six years of monopoly the Providence Telephone (Bell) Company has placed 12,402 telephones in the Providence district, representing about 9,500 subscribers. Providence has about 200,000 population, while the remaining territory included in the district may be conservatively estimated at 30,000. This is only about 56 telephones to the thousand people. It is admitted that a proper number of telephones for this aggregate population would be at least 30,000. Less than five per cent of the people in Providence are telephone subscribers, which is remarkable when it is recalled that in Rochester there are 105 telephones to the thousand people, in Toledo 100, in Cleveland 110, in Kansas City 127, and in Los Angeles 250.

These facts have been laid before the people of Providence, and the point that Independent companies operate in these other cities has convinced them that competition is a good thing. The Bell company at Providence is charging rates considered excessive and prohibitive. The lowest rate charged is $120 a year for unlimited service and the service is unsatisfactory.

The Home company has scured franchises in other towns in the state and with an entrance into Providence will be equipped for an effective fight against the monopoly. The officers and directors of the Independent company are well-known men of financial standing in the telephone field. The directors are: Theodore M. Brush of Elyria, O.; Howard Hendricson, Albany, N. Y.; Dr. Clarence T. Gardner, William Penn Mather, Bertrand J. Horton and Thomas Z. Lee, all of Providence. The officers are: President, Thomas Z. Lee; vice-president, Dr. Clarence T. Gardner; secretary and treasurer, Theodore M. Brush. With the exception of Mr. Hendricson and Mr. Brush, all these directors are well-known citizens of Providence. Mr. Hendricson is a business man of Albany, N. Y., and is president of the Home Telephone Company of that city. Mr. Brush is a large manufacturer of electric apparatus and is president of several Independent telephone companies. Thomas Z. Lee, president of the Home Telephone Company, is a well-known member of the Rhode Island bar, and a partner in the legal firm of Barney & Lee, with offices in Providence. He was formerly judge of the district court of Woonsocket.

USE OF CURVES IN TELEPHONY

A Practical Application of Co-ordinate Geometry

By Einar Brofos

THE term co-ordinate geometry may appear to many persons very uninviting, as most mathematical terms do, however, some acquaintance with the subject, in most cases, will more than repay the slight study required to acquire the knowledge. The co-ordinate geometry may be said to deal with the relations existing between the horizontal and vertical projections of any point or points of a curve or inclining line.

The position of a point in a plane may be indicated by means of its distance from any two fixed intersecting straight lines in the plane, these distances being measured parallel to the fixed lines. Thus, if YY_1 and XX_1, Figure 1, are any two fixed intersecting straight lines in the plane YOX, we may indicate position of the point R in that plane by giving its distance VR from line YY_1 measured parallel

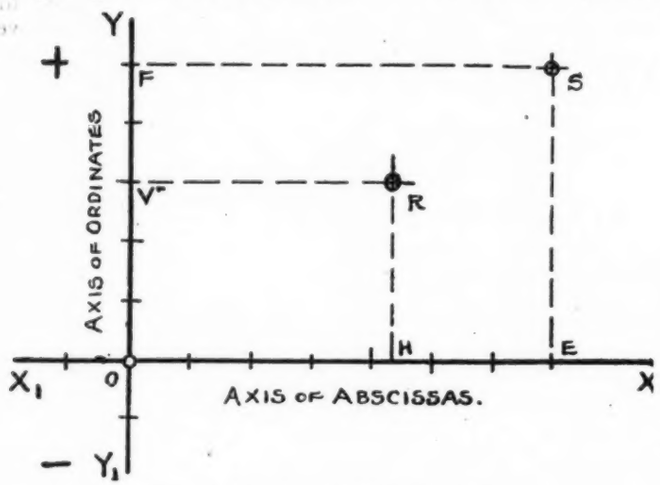


Figure 1—Location of Points in a Plane.

to XX_1 and its distance VH from the line XX_1 measured parallel to YY_1.

The fixed intersecting lines YY_1 and XX_1 are called the axes of co-ordinates. The horizontal axis is called the X axis, or the axis of abscissas; the other axis is called the Y axis, or the axis of ordinates. The distance of any point from the axes, measured parallel to the axes, are called the co-ordinates of the point. That co-ordinate of a point which is parallel to the X axis is called the abscissa of that point. While that co-ordinate which is parallel to the Y axis is called the ordinate. In giving the co-ordinates of a point we name the abscissa of the point first.

If we say that the co-ordinates of a point, S, is 7,5, we mean that its abscissa or distance from the Y axis is seven and its ordinate or distance from the X axis is five. To locate this point in a plane YOX, Figure 1, we take any convenient length, for instance one-half inch, for our unit of length, and measure off seven units from the Y axis towards the right and from the point thus reached, measure off five units from the X axis parallel to the Y axis and upwards, hence S is the point whose co-ordinates are 7, 5.

It is obvious that this method might be utilized in showing the relations which exist between two or even more variable quantities. Thus we see that if we have two columns of figures related by one law or another we may plot one column of figures on the axis of abscissa, and the other on the axis of ordinate. Then through the points of intersection between the different co-ordinates we may draw a line or curve, which will convey a clearer impression to the mind and from which conclusions can be drawn much more readily than from the two columns of figures.

Paper suitably prepared for the above mentioned pur-

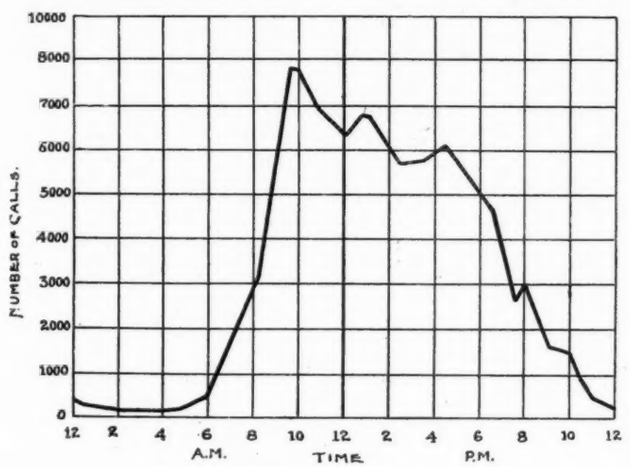


Figure 2—Telephone Traffic Record.

pose may be bought for a very slight amount. This kind of paper, sometimes called "squared paper," is usually divided in the metric system, that is, in millimeter squares, owing to that system being a decimal one.

The great convenience resulting from the use of this system is most appreciated by those who are actually practicing it. For instance, a merchant has in his office a sheet of squared paper with points plotted in a curve, which he adds to day by day, each point showing the price of copper or iron wire, etc., at any date. Now to what use does he put such a curve? 1. At any date he sees what the price was. 2. He sees by the slope of the curve the rate of increase or decrease of the price. 3. If he plots other things

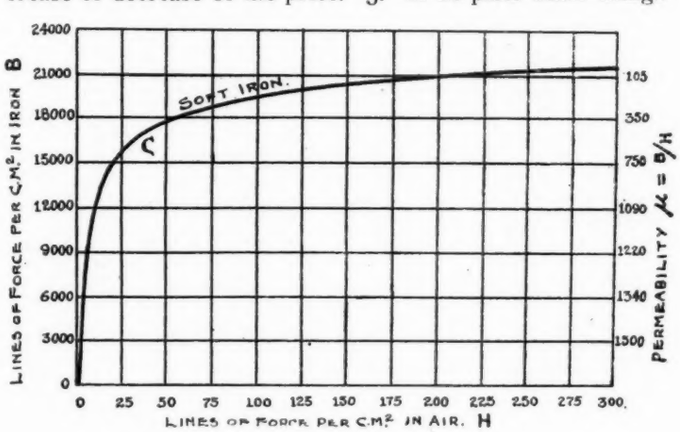


Figure 3—Magnetization and Permeability Curve.

on the same sheet of paper at the same dates, he will note what effects their rise and fall have upon the price of his material. 4. An examination of his curve for the past will enable him to predict with more certainty than a man can do who has no such records.

The writer once read an article upon how the number

of telephones were increasing while the rates were decreasing in the different countries. The figures were many and difficult to follow. However, upon taking and plotting them on a squared paper every result which the author had labored so much to bring out was shown clearly by the curves. Possibly this is the reason why some statistical writers do not publish curves. If they did there would be little need for writing.

Another useful application of the co-ordinate diagrams is when a person is performing certain experiments. When doing this it is generally for the purpose of finding out how one quantity depends upon another. Therefore, when one has two columns of observed numbers and plots them on squared paper, we may: 1. See if the points lie in any regular curve. If so, the simpler the curve the simpler the law which we may expect to find. 2. Correct errors of observation. For if the points lay nearly in a simple regular

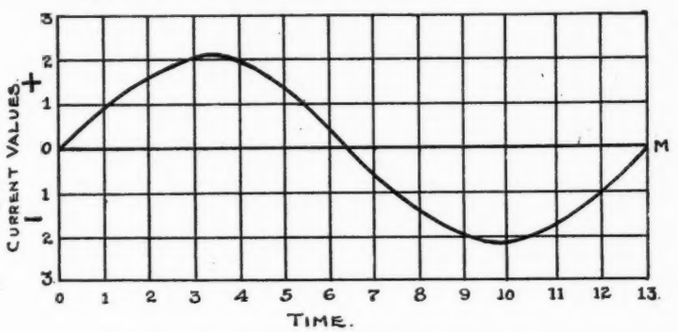


Figure 4—The Alternating Electric Current Curve.

curve and we draw the curve that lies most evenly among the points, then it may be taken as probable that if there were no errors in observation the point would lie exactly in such a curve.

The co-ordinate diagrams may be divided up into several groups or classes. We will now attempt to consider some of the principal ones.

An example of one of the simpler classes, or a curve showing the relations between two varying quantities, is shown by Figure 2. This particular curve, which is called a telephone traffic record, gives us the number of calls at the different hours of the day. Thus the abscissa representing the different hours of the day, while the ordinates represents the number of calls. This curve shows us now that the calls during the night are very few, starting to increase rapidly, however, after 6 a. m., until, when at 9:45 a. m., the

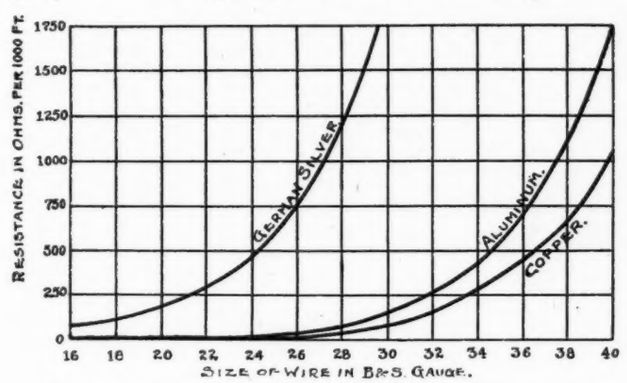


Figure 5—Resistance Curve of Different Kinds of Wire.

number of calls are maximum, reaching 7,750 calls. This rate, as we may see, only lasts until 10 a. m., when the number of calls begins to decrease. However, at 12 m. the calls are again increasing, lasting only until 1 p. m., after which a more or less steady decrease will follow, as shown by the curve. It is readily understood that such a system is of immense value to the traffic manager of an operating telephone company, as he can by a glance note the different loads on the exchange during the day. It is apparent that instead of plotting hours on the abscissa, we might plot days or minutes, as required. Also, instead of total number of calls, we may, for instance, plot number of calls per line.

Another kind of co-ordinate diagram is one with three varying quantities (shown by Figure 3). This curve gives the relations which exist between the magnetic lines of force per square centimeter in iron (B) and air (H) and also the permeability μ or $B \div H$. Here the lines of force in air is plotted on the abscissa, while the lines of force in iron is plotted on the ordinate. The resulting permeability is also plotted on the ordinate and the values are shown on the right hand side of the diagram. After having drawn the curve C in accordance with previously determined figures, in a manner which has been explained, we may use this curve in different ways, for instance, if the number of lines of force per CM^2 in a coil without iron core is 100. What is the number of lines of force in a coil with the magnetic path filled with iron? This will be equal to the ordinate to the point of intersection between the curve and the abscissa to 100, or 19,500, as shown.

A third class of diagrams are those in which the curve at

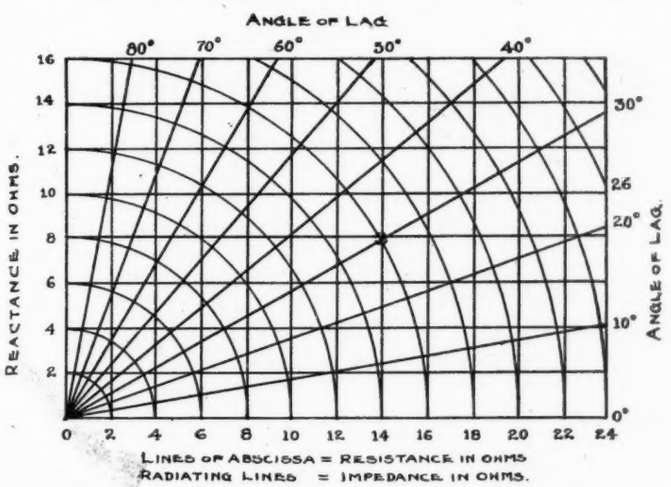


Figure 6—Resistance. Reaction and Impedance Diagram.

a certain stage has zero value, from which it will deviate in a positive or negative direction. An example of a curve of this kind is shown by Figure 4, which represents the instantaneous values of an alternating electric current, of a so-called sine curve form, during the different stages of a cycle. The abscissa OM represents time, say in seconds, while the positive and negative ordinates represent corresponding current values. From this curve we may readily note that the alternating current starts at zero, increases to maximum positive, then decreases to zero, increases again to maximum negative and decreases to zero, etc. This kind of diagram may also be used for other purposes, as for instance showing the variation in temperature above or below a fixed standard.

The next class of diagram which we will attempt to explain is the kind where several mediums are proportional to the same values, for instance, the resistance per 1,000 feet of copper, German silver and aluminum wire of different sizes. A diagram of this kind is shown by Figure 5, where the abscissa represents size of wire while the ordinates represent corresponding values of resistance. From a diagram of this kind we may see at a glance the relations with respect to resistance which exists between the different kinds of wires. For instance, following the line extending upwards from, say point 29 on the X axis, until when intersecting the different curves, we may find the different values of resistance by means of the corresponding ordinates.

All of the diagrams in this article explained up to this point consist of permanent curves and depended upon them for giving the relation between the different quantities. However, we will now consider a deviation from this class, namely, a diagram without any permanent curves, the diagram itself giving the relation between the different quantities. An example of this kind is shown by Figure 6, which gives the relations, interconnecting resistance, reactance and resulting impedance and angle of lag. We note that in addition to the lines of co-ordinates, other lines are drawn radiating from point of origin or *O*.

Through the radiating lines, circle lines are drawn with *O* as center, serving the purpose of dividing all the radiating lines into equal lengths. In this diagram the abscissa represents resistance, the ordinates reactance, while the length of the radiating lines represents the resulting impedance. The figures at the end of each circle line give the value of impedance. The last variable in this diagram is the angular displacement of the radiating lines with respect to the axis of abscissa. This displacement, marked in degrees as shown, represents the angle of lag of the current behind the impressed electro-motive force. As an example let us suppose we have a coil of 14 ohms resistance and 8 ohms reactance. What is the resulting impedance and lag? Measure off 14 units to right from *O* on the *X* axis, from the point thus reached measure off 8 units upwards from the *X* axis. The length of the radiating line for this point gives the value of the corresponding impedance, which may be found by the intersecting circle line, which in this case shows 16.1 ohms. The angle of lag shown on the end of the intersected radiating line is 30 degrees. Many other applications of this curve may suggest themselves to the careful reader. As for example, what different resistances and reactances will cause the same angle of lag or, say, impedance, etc.

From what we now have been considering, we may come to the conclusion that co-ordinate geometry, as we have been treating it, is simplicity itself.

However, in conclusion, it may be said that this simplicity does not always prevail, the different mathematical laws which give the relation between the co-ordinates of the different points of a curve belong to the highest mathematical problems and, under the rather dangerous looking term, "calculus."

WISCONSIN INDEPENDENTS MEET

Elect Officers and Transact Other Important Business at Adjourned Meeting at Madison, March 7.

By E. M. McMeal

THE Independent Telephone Association of Wisconsin met in adjourned session in Turner Hall, at Madison, Wisconsin, March 7 and 8, to complete the business left unfinished when the convention adjourned in January. The meeting was called to order by President Valentine of Janesville at 3:15 p. m. Mr. Mohlenpah, president of the First District, reported a meeting of fifteen companies having been held at Janesville, and representing 700 telephones outside of Racine, in the First District, organized with by-laws similar to those of the Indiana district associations, with some changes. They will continue to work on the map and statistics, a committee on toll line connections was appointed, and Mr. Grant of Janesville was elected secretary and treasurer.

Mr. John S. Donald, president of the Second District, reported on the same lines, namely, that this district represented fourteen companies with 27,500 telephones, their organization is completed, that their committee on a map of the district had prepared a good map, and, finally, that good feeling prevailed and a large growing interest is shown in favor of Independent lines. The Third District was combined with the Second District and called the Second District.

Delegates to the Michigan Independent Telephone Convention. Madison, Wisconsin, March 8, 1907.

Mr. E. J. Kneen, president of the Seventh District, re-

ported their organization perfected and that it is enthusiastic and well organized with seven to ten thousand telephones represented in the district.

Captain John M. Baer reported for the Ninth District that a meeting called for February 18 and 19 was adjourned and met on March 12, on account of sickness and business reasons. Captain Baer reported the addition of the Waupaca exchange to the district by purchase by the Appleton company, and that he was preparing a map of the territory in the district.

Mr. E. I. Bates reported for the Tenth District that a meeting had been held at which five companies were represented. By-laws were adopted, and the district permanently organized, 3,025 Independent telephones being represented in the district and conditions much improved; also that they were preparing maps and statistics. Twelve to fifteen companies were reported ready to join the district association.

President Valentine announced the illness of Mr. H. D. Critchfield, and that Mr. Chapin of Milwaukee, a director of the Milwaukee Independent Telephone Company, was present, to represent Mr. Critchfield. Mr. Chapin reported excellent progress by the Milwaukee Independent Telephone Company's preliminary work, and that through the aid of solicitors 5,200 contracts had been obtained for telephone service; that 2,700,000 feet of conduit had been ordered shipped to Milwaukee and that construction would begin as soon as it was physically possible.

Mr. W. J. Stadelman, the traveling secretary of the International Independent Telephone Association of America, was present and addressed the convention.

President Valentine then announced that proposed legislation demanded the attention of this association. Mr. Crowley, Jr., moved that a committee of three be appointed to draft specifications covering the crossing of wires over railroad crossings, the purpose being to govern the members of this association in the construction of such lines, and that this committee be instructed to confer with the other interested persons in the matter and report at 10 oclock a. m., March 8, which was carried. The president appointed on this committee: Messrs. Crowley, Harper and Teasdale.

Mr. Harper moved a committee be appointed, consisting of one from each district, to meet and arrange a uniform set of district by-laws. The president appointed on this committee, Messrs. Grant, Donald, Schweizer, Crowley and Bates. Mr. Crowley moved that a session be held that evening, commencing at eight o'clock, for the purpose of discussing exclusively proposed legislation now pending, and to accept an invitation from Mr. Harper to a "smoker" afterwards, which was carried.

EVENING SESSION.

The meeting was called to order by President Valentine, and the following permanent committee on legislation was appointed by the chair with power to act: Messrs. F. C. Grant, J. C. Harper, Richard Valentine, R. S. Donald and C. H. Schweizer.

It was moved and seconded that Bill No. 205A. regarding the setting of poles; Bill 298A, regarding the granting of franchises, with Bill 506A, regarding the taxing of property not used exclusively for telephone purposes, and Bill 666A, regarding the stringing of wires and cables over private property, all be referred to the legislative committee.

Many other bills were discussed, after which the meeting adjourned to Friday, March 8, at 9:30 a. m.

FRIDAY MORNING SESSION.

At eleven o'clock the meeting was called to order by President Valentine. Mr. Schweizer moved that the companies represented at the meeting leave maps and data with the secretary for the use of the Milwaukee company, and that the Milwaukee company be asked for assurances of their immediate construction of lines.

Mr. Donald reported for the nomination committee as follows: "Your nomination committee respectfully recommends the election of the following-named gentlemen as officers of the association for the ensuing year: President, H. D. Critchfield, Milwaukee; vice-presidents, the presidents of the district associations; secretary, J. C. Crowley, Jr., Superior; treasurer, J. S. Donald, Mt. Horeb. Executive committee: The president and secretary, ex-officio; John M. Baer, Appleton; Richard Valentine, Janesville; J. C. Harper, Madison; Dr. G. N. Hidershide, Arcadia; H. Teasdale, Sparta; Wm. Van Middleworth, Racine; W. P. Hyland, Ashland."

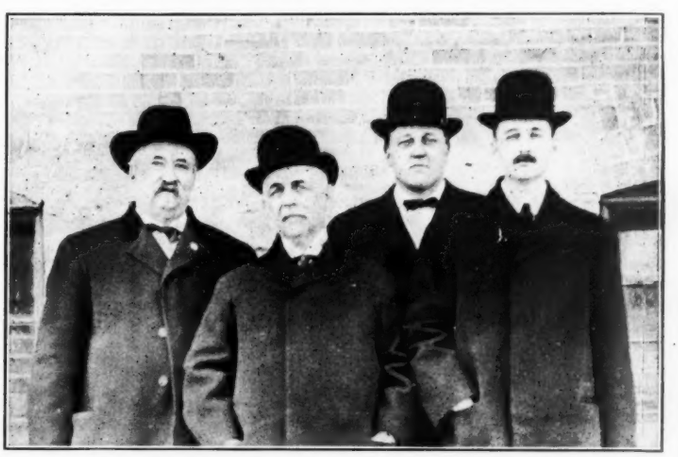
The report was adopted and the above officers elected for the coming year.

Mr. Goodrich reported for the committee on constitution and by-laws, which was appointed in January. The report was adopted and will be printed in book form and mailed to each member of the association as soon as expedient.

The committee on by-laws for district association and uniformity of same also reported. The report was accepted and will also be printed with the by-laws for the state association.

A resolution was adopted amending Article 7 of the said by-laws by adding:

"Any individual member of an Independent operating company may become a member of the association in the same manner as specified above, and by paying a membership fee of one dollar and one dollar per year dues."



Capt. J. M. Barr. W. J. Stadelman.
Richard Valentine. W. J. Goodrich.

It was then moved and carried that an assessment of one cent per unit be assessed against each company.

Mr. W. J. Stanton, of Waterloo, Iowa, superintendent of the Corn Belt Telephone Company, addressed the convention on the subject, "The Iowa Clearing House." Mr. W. F. Goodrich was appointed trustee for the fund specified at the January meeting as an organization fund. Mr. J. J. Nate addressed the convention on the affairs of the United States Independent Telephone Company.

A resolution was presented thanking the retiring president and secretary for the valuable work done by them in faithfully performing their duties, and especially thanking President Valentine for his many years of service in the office of president. The resolution was adopted by a rising vote.

A unanimous vote of thanks was also tendered to Mr. Harper for the faithful work performed by him for the association, and to him and the Madison people for the success of this convention.

Mr. Valentine then responded in closing remarks and the convention adjourned.

MANUFACTURERS DEPARTMENT

NEW FACTORY OF THE CENTURY TELEPHONE CONSTRUCTION CO. AT BUFFALO, N. Y.

It is said that its handsome new plant will give the Century Telephone Construction Company one of the largest and best equipped telephone manufacturing establishments in the world. Readers of TELEPHONY will remember that the Century Telephone Construction Company's old factory, which was at that time running to its fullest capacity, was destroyed by fire on October 6. Owing to the large number of orders which the firm had on its books unfilled, it was obliged to move quickly in order to avoid expensive delays and inconvenience to its customers. It therefore purchased the stock and equipment of the Williams-Abbott Electric Company, of Cleveland, Ohio, long known as one of the best equipped plants in the country from a mechanical standpoint, and also commenced operation of a temporary factory at Buffalo. It has ever since worked both the Buffalo and Cleveland factories vigorously. The new plant, as shown by the illustration, is a well constructed building, fire-proof throughout and admirably adapted to the purposes to which it will be put, namely, the manufacture of a complete line of magneto and common battery telephone equipment. It is located on Elmwood avenue near Hertel street, Buffalo, N. Y., and may be quickly and conveniently reached via Elmwood electric cars. It is expected that the Century Telephone Construction Company will have operations in full swing in the new factory before May 1. It will continue the manufacture of the Williams-Abbott line, as well as enlarge and broaden its own.

New Factory of the Century Telephone Construction Company, Buffalo, New York.

SWITCHBOARDS GIVEN AWAY.

It is seldom that a company gives away a switchboard, but this is what the Sumter Telephone Manufacturing Company, of Sumter, South Carolina, is doing for a limited time only. Upon receipt of a letter from those interested in modern telephone equipment, the company will be pleased to ship one of its "Unitype" switchboards complete, ready for use every day in the year. The board can be used until January, 1908. The instrument above referred to is a very neat and attractive calendar in the exact shape of a modern switchboard. It is adapted to stand on the desk or writing table, and being printed in imitation oak, it really represents a miniature switchboard which is useful every day in the year.

NATIONAL ELECTRICAL SUPPLY CO.

One of the most important factors in the eastern telephone and electrical field is the National Electrical Supply Company, of Washington, D. C. This concern has for some time past enjoyed a large and growing telephone trade and has been especially noted for its supply of locust pins.

The company is the successor of the old firm of Royce & Marean, who started in the electrical business in Washington in 1870.

The National Electrical Supply Company was organized through the efforts of Mr. E. C. Graham and within one year under his management it was necessary to find larger quarters, owing to the rapidly increasing business.

In January, 1904, the firm moved into a new building put up for its special purposes at 1330 New York avenue, which is its present home.

This new building is four stories in height, exclusive of basement; on a twenty-five,foot lot extending 160 feet back to a forty-foot alley in the rear.

A novel arrangement in the rear of the basement, which extends under the entire building, is an arrangement of two large double doors, where all goods are received and shipped, and which permits a wagon to drive into the basement.

An overhead trolley extends from the elevator shaft to a point four feet outside of the back wall, and is used in handling heavy articles from a wagon on to hand trucks or

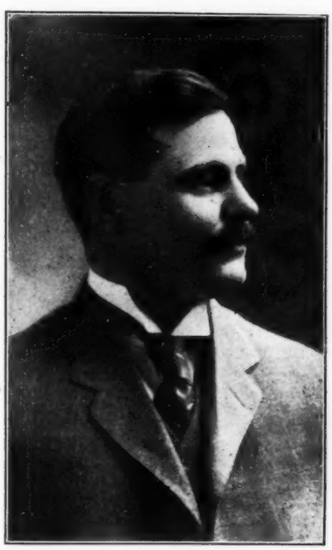
elevator, by which they can be taken to any part of the building.

The basement is used as a shipping and receiving department and as a storeroom for insulated wires, cables, iron conduit and molding. One million feet or more of insulated

Buildings of the National Electrical Supply Company, Washington.

wire, two carloads of steel conduit, one carload of molding and a carload of conduit fittings are stored there.

In addition to the building at 1330 New York avenue the firm has rented a warehouse in the alley adjoining the rear of the building, which is used for the storage of line materials, such as cross-arms, pike poles, pins, brackets,



E. C. Graham, President.

H. B. Mirick, Treasurer.

bare wire, all sizes and kinds of galvanized bolts, lag screws, braces, anchors and all other such material which is used in the construction of telephone, telegraph, electric light and trolley lines. This warehouse comprises four floors, each being 100 x 25 feet and having a total area of 25,000 square feet.

Ths first floor is on a level with New York avenue and ten feet above the road level of the alley. In the rear of the first floor are the offices of the bookkeepers and of the secretary of the company, Mr. J. E. Mayfield, who attends to the details of the salesroom.

In the bookkeepers' office is also the office of the treasurer of the company, Mr. H. B. Mirick. The front part of the first floor is the main salesroom of the establishment.

The general offices of the company are on the second floor, and are finished in quartered oak and handsomely furnished. Of the two private offices on this floor one is for

J. E. Mayfield, Secretary.

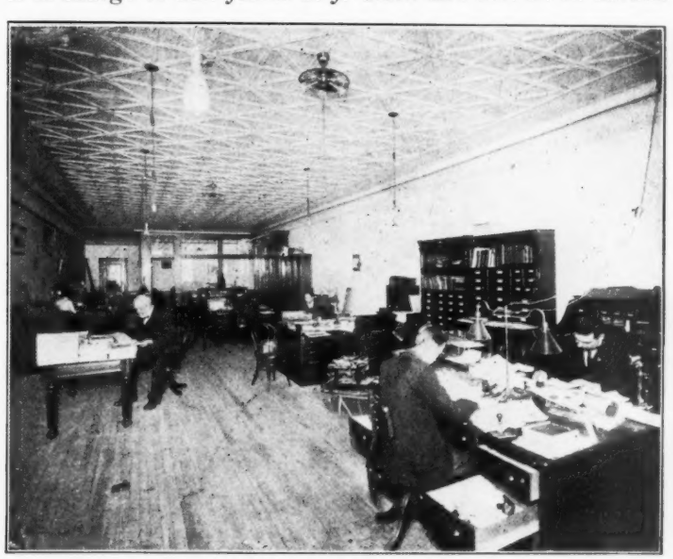
J. L. Townsend, Vice President.

the president, while the other is used as an estimate room for the construction department.

The rear of the second floor is used as a storeroom for the machinery supply department.

The third floor is devoted entirely to a stock room. The sides of this floor and center of same are built up of tiers of shelving in which is kept the open stock of the company. On this floor alone there are more than 25,000 feet of shelving, which are packed full.

On the top floor is the manufacturing and repair shop of the company. The shop is equipped with over twenty of the latest improved machines for manufacturing purposes. The foreign electrical specialty manufacturing department is in charge of Mr. James S. J. Clark and Mr. D. L. Moatz.



General Offices National Electrical Supply Company, Washington.

The factories of this department are in Alexandria and Round Hill, Va., and occupy an area almost equal in size to Franklin square, Washington. The yearly output of these two factories amounts to not less than fifty carloads, and the products are sold in all parts of the United States. In addition to manufacturing electrical specialties, this de-

partment takes care of the sales of railroad ties, chestnut poles and complete electrical equipment for overhead electrical lines.

The general electrical supply department is in charge of an officer of the company, assisted by Mr. Charles O. Reed. This department takes care of the general electrical supply business and is the purchaser of all needed electrical supplies. This department has compiled a general electrical supply catalogue containing 600 pages of descriptive and illustrative material, which will be sent on request to those interested. The stock of general electrical supplies is said to be the largest in the south and east, with two exceptions.

The following are officers of the National Electrical Supply Company: Mr. E. C. Graham, president; Mr. H. D. Mirick, vice-president; Mr. T. L. Townsend, second vice-president; Mr. J. E. Mayfield, secretary; Mr. H. B. Mirick, treasurer.

THE DICTOGRAPH.

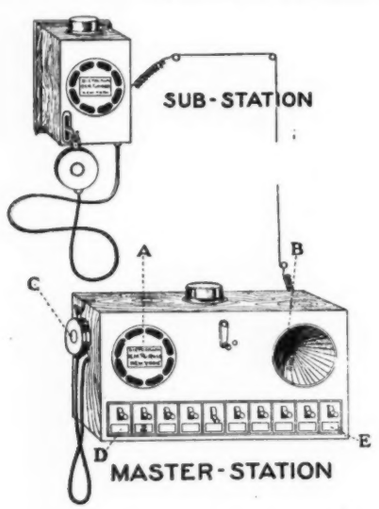
The Dictograph, one of the most interesting of the many new electrical inventions, is said to be the greatest time and labor saving office devices ever produced.

It enables the manager or other executive officer of a corporation, bank or any business concern, to direct his subordinates and department managers, dictate his letters, consult his associates on matters requiring absolute secrecy, give general orders and, in short, attend to his daily business without the necessity of leaving his private office or admitting others to same.

The instrument itself consists of a "master station" with any number of "sub-stations." The accompanying cuts will show the general appearance of a Dictograph system.

The sound of the voice enters the receiving instrument shown at *A* and is produced perfectly at the other end of the line (sub-station).

The speaker at the master station does not speak into anything, does not hold anything in his hand or to his ear,



but speaks in an ordinary tone of voice within any distance, from three to fifteen feet away from the Dictograph, the sound concentrating, receiving instrument being as sensitive to sound as the human ear. No set position is necessary for the speaker who may assume the same attitude as if the person with whom he were talking were in the room with him.

The reply from the sub-station is heard coming from *B* where a small cone is inserted in the face of the Dictograph and the voice of the employe is reproduced, it is said, as clearly, and heard as distinctly, as if he were in the room. If, however, absolute secrecy is desired, it is only necessary to turn the switch at *C* and use the ear piece. It is claimed that strict privacy is absolutely assured by the use of the Dictograph, as there is no possibility of anyone overhearing what is not intended for his ears, inasmuch as there is no central operator required, each connection being entirely separate.

For these reasons when one is talking to a department manager at one sub-station, a person at another sub-station will be unable to hear anything that is said. The line of communication is immediately established by merely pressing a lever corresponding to the name of the person or department one wishes to call and it is not disconnected until one moves the lever back to first position. These levers are shown at *D* and *E* and should one wish to indite

Showing the Dictograph in Use and its Inventor Mr. K. M. Turner.

or speak to more than one department at a time, one has only to press down the required individual levers. Thus one may issue instructions to one entire establishment at one and the same time without moving from one's desk and with the utmost ease and promptness. Any number of rooms located in any part of a building or block may be included in the Dictograph system. It is especially desirable where offices are disconnected or on different floors. The time saved in any large office by the use of the Dictograph can only be appreciated after its installation. To say that it saves one hour per day of "the best man in the office" is a pronounced conservative estimate. This fact alone will appeal to any progressive business man.

In finish and design the Dictograph is an ornament, being made in golden quartered oak or mahogany, highly polished, with full nickeled and enameled trimmings and connections. The Dictograph proper, or master station, is very compact, measuring but 11 x 5⅞ x 4¼ inches, and may be attached to the desk by folding bracket or placed in a permanent position at the rear of the desk. The sub-stations are of the same finish and measure but 4¾ x 3¼ x 2¾ inches.

The necessary wiring is so inconspicuous that it does not mar the most elegant interior and is entirely out of the way. The Dictograph is installed upon a rental basis and estimates will be furnished upon request.

The Dictograph is the invention of K. M. Turner, president and general manager of the General Acoustic Company, 1265 Broadway, New York City, to whom all inquiries should be addressed.

TO FILL ALL ORDERS.

The fire which destroyed one of the factory buildings of the Wire & Telephone Company of America at Rome, New York, on February 23, will in no way interfere with its taking care of the requirements of its trade as heretofore. Owing to the firm's resourcefulness and quick action, provision has been made to make deliveries and to accept new business on all of its products. The fire, which destroyed only the wire-drawing plant, was no sooner under control

than arrangements were being made for the drawing of the firm's wire by other mills. Its representatives were instructed to accept orders and assure customers of deliveries as though they had not had the misfortune of a fire loss. The buildings in which the firm manufactures magnet wire, rubber covered wire and telephone products, were not damaged in the least. The Wire & Telephone Company of America has already made contracts for the erection of a new wire-drawing plant, which will be pushed to the earliest possible completion, and will have a greatly increased capacity.

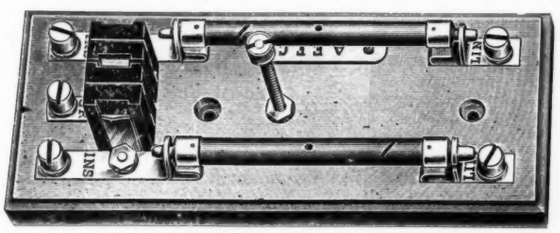
SPECIAL TELEPHONE WIRE.

The Indiana Steel & Wire Company, of Muncie, Indiana, keeps on increasing its telephone trade. Its excellent policy as regards the manufacture of a superior galvanized wire, designed expressly for telephone use, has served to attract attention generally throughout the telephone field. It is said that the majority of the largest buyers in the telephone field are already patrons of the Indiana Steel & Wire Company, and that this number is being added to from day to day.

It behooves the user of telephone wire to take every precaution against inferior wire, as poor wire means poor service. All of the Indiana Steel & Wire Company's products, it is said, come up to the most rigid specifications, and pass all tests required by the Western Union Telegraph Company and the Bell Telephone Company, as well as the largest Independent concerns. A folder, descriptive of this firm's make of wire and containing some very useful information in regard to the manufacture of wires and its tests, will be mailed free on application.

AMERICAN INDIVIDUAL PROTECTORS IN DEMAND.

The American Electric Fuse Company announces that its sales on approved protectors for subscriber's use have increased about fifty per cent since March 1st. These American protectors have been on the market for only a little more than six months, but have met with such favor, it is said, at the hands of the trade that orders already received exceed fifty thousand protectors.



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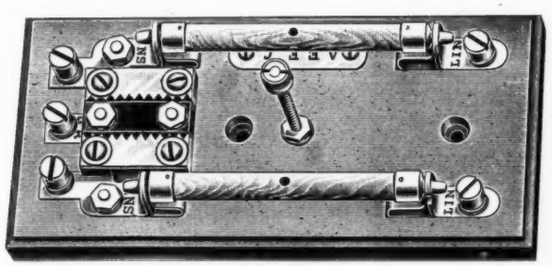
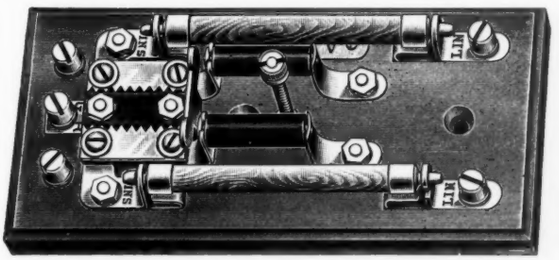


No. 998.

The company has five individual subscriber's protectors which have been approved and listed by the National Fire Underwriters. These are known as numbers 990, 991, 997, 998 and 999. Orders for these protectors have been received from nearly every state in the Union. Samples will be sent on request to anyone interested in any type illustrated herewith or shown in the company's circular matter.

The American Electric Fuse Company has always enjoyed a large Canadian trade. The firm's latest installation is for the complete terminal equipment and subscriber's station protectors at Edmonton, Alberta, Canada. This contract was closed after competitive tests extending over several months, made with other types of protectors, it is said, and is claimed to be the largest order for protectors to be shipped to Canada placed thus far in 1907.



No. 999.

Cover for 990, 998 and 999 Protector.

AMERICAN PROTECTORS FOR DETROIT.

The Dean Electric Company, after extensive and elaborate tests of various types of switchboard protectors, awarded the contract for Detroit, Michigan, to the American Electric Fuse Company. The new plant for the Home Telephone Company at Detroit is to be a model in every sense of the word. The Dean company is sparing no expense to make the new switchboard equipment absolutely perfect and the specifications for the protectors were very rigid, requiring them to be of the same high quality as the other equipment to be furnished by the Dean Electric Company.

The American Electric Fuse Company is very much gratified to secure this contract, and especially so because its standard, type "H" protector was found to meet all the rigorous requirements of the tests and specifications. In connection with the largest protector installations, the manufacturers have frequently found it necessary to design a special type of protector to meet the exacting requirements of such large exchanges. This was not the case in connection with the Detroit contract. The American type "H" protector, without any alteration, answered every one of the specifications and fulfilled every requirement.

The Detroit protector order is proclaimed the largest order for protectors ever placed in the Independent telephone business. It approximates 20,000 pairs in the main and branch exchanges and when the installation is completed will be one of the "show installations" of the Independent field. TELEPHONY at a later date is promised an illustrated description of the Home Telephone Company's plant at Detroit in which the American protector installation will be fully shown.

OSHKOSH LOGGING TOOL CO.—ITS PLANT AND PRODUCTS.

Considering the importance of its operations, as regards the telephone industry, it may be of interest to many readers to know something about the Oshkosh Logging Tool Company, of Oshkosh, Wis., and its line of telephone construction and linemen's tools.

The Oshkosh Logging Tool Company is located on the Fox river where it flows into Lake Winnebago. Besides being a very beautiful spot, Oshkosh is noted for its many large manufacturing plants of various kinds, and the Oshkosh Logging Tool Company is especially conspicuous on account of the fine new plant which it recently completed and is now occupying.

This company was organized in 1887, when a small building was erected. This it was found necessary to more than double in 1897 when the company was incorporated.

Original Plant Oshkosh Logging and Tool Company, Oshkosh, Wisconsin, 1887.

Although the Oshkosh Logging Tool Company started in business for the manufacture of lumbermen's tools, it began to put out a few construction tools in 1895. This business grew so rapidly that it made necessary an addition to the plant in 1897, and ever since then this department has continued to grow until it now constitutes a very important part of the company's affairs.

In the year 1898 the Oshkosh Logging Tool Company turned out its first "Kalkeen" insulator pins. These pins were manufactured in but a small way for some years, but eventually this department grew, increasing from one million pins in 1903 to eighteen millions during the year 1906. This great increase in the pin department, together with increased business in all other lines, made larger quarters absolutely necessary. It was also found desirable to add some new, heavy machinery to cut down the cost of production, but such machines could not be put into the old factory, both for lack of space and insufficient boiler and engine capacity. Accordingly, in the spring of 1903 the present site was purchased, consisting of an entire city block. It is located on the river front and directly across the street from the Chicago and North-Western freight house.

During that year a two-story and basement brick, wood working factory was erected. This building is of steel structure and the dimensions are 154 x 64 feet. This gives a floor area of 19,712 square feet as against 3,300 square feet for the wood working department in the old factory.

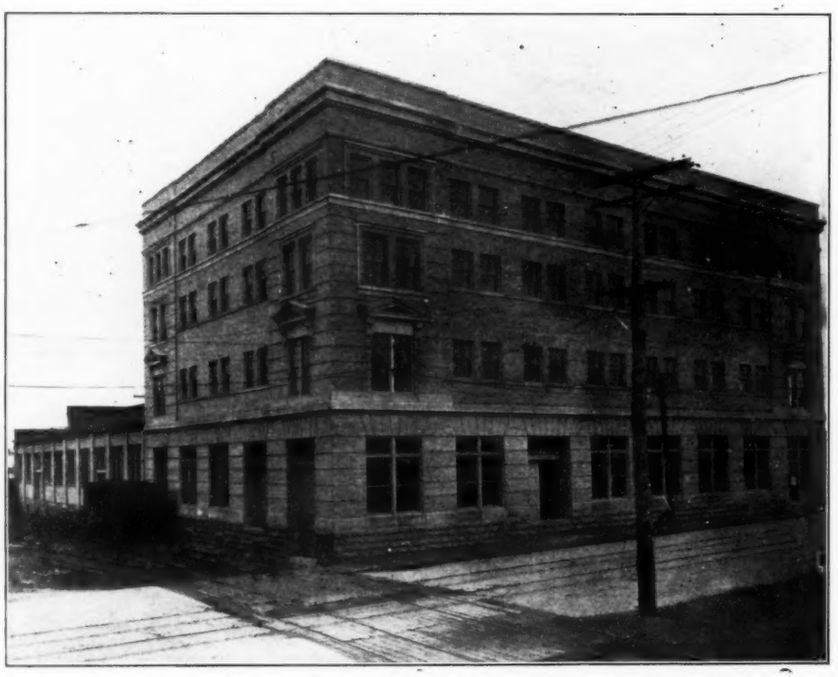
With a business which taxed the capacity of the old factory it became a difficult problem to move the machinery and stock without seriously interfering with the prompt filling of orders, and this problem was finally solved by moving one machine at a time, setting it up and starting it to running immediately in its new home.

The year 1904 witnessed the erection of a modern blacksmith shop, saw mill and large, iron-covered lumber shed.

The blacksmith shop is a one-story and basement, brick and steel structure, 154 x 54 feet, giving 8,315 square feet of floor space, as against 2,100 square feet in the old plant.

The saw mill is a new venture for the Logging Tool Company. It now rails in a selected class of logs and cuts them up for handle stock to the best advantage.

Although warehouse space was badly needed, it was thought best to go slow and find out, if possible, how large a warehouse the business prospects would warrant. The result was that a four-story and basement brick and steel warehouse and office building was decided on. Ground was broken in 1905, but high water and delays in securing structural steel and other materials prevented the completion of this building until July 1, 1906. This warehouse provides 60,000 square feet of floor space, where the old plant had 11,000 square feet.



Present Plant of the Oshkosh Logging and Tool Company, Oshkosh.

In one corner of this warehouse, comfortable office quarters are located, and all business friends are cordially invited to call whenever they visit Oshkosh.

An interesting feature of this plant is that it has no power plant, everything being run by electric motors, the current for which is obtained from the local electric light plant. The electrically driven saw mill is one of the most unique mills in the United States.

With a plant of this kind in the hands of able managers and skilled workmen, the Oshkosh Logging Tool Company feels that it is in position to take care of telephone buyers' wants in a manner which is bound to give satisfaction. The concern's business extends throughout the United States, from New York to New Orleans and San Francisco. Considerable export business to Mexico, Cen-

VIEWS IN THE FACTORY OF THE OSHKOSH LOGGING AND TOOL COMPANY, OSHKOSH, WISCONSIN.

1—Office of Mr. Elmer Leade, President. 2—Secretary C. A. Libby at his Desk. 3—Mr. F. W. Huelster Purchasing Department. 4—Main Office and Accounting Department. 5—Stenographers' Room. 6—Entrance to Office. 7—Interior Woodworking Factory. 8—Interior Woodworking Factory. 9—Interior Blacksmith Shop. 10—Yard and Teams. 11—Shipping Department. 12—Corner of Sample Room.

tral America and Canada is also enjoyed. The Oshkosh construction tools can be purchased through all jobbing houses, and wherever local dealers are unable to supply buyers, they are requested to write direct to the factory where their orders will be given immediate attention. The company's new warehouse enables it to carry a large stock of manufactured goods, for which orders are filled the same day they are received.

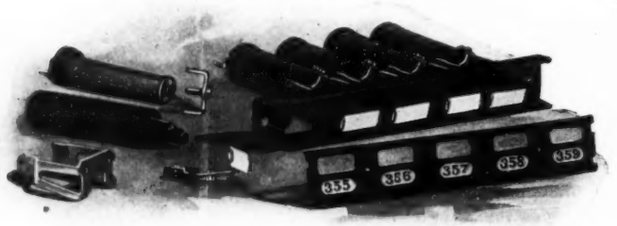
The Oshkosh brand of tools is fully guaranteed by its manufacturer, and especial attention is invited to the firm's climber, which is a very fine problem in forging. The entire climber, including the spur, is forged from a single piece of tool steel of proper temper and toughness. The company announces that it also is in position to manufacture any special tools according to telephone companies' blue prints.

A glance through the firm's catalogue shows a very complete line of telephone construction tools and anyone in the market for such goods will do well to write the Oshkosh Logging Tool Company, asking for Construction Tool Bulletin No. 8.

THE NEW MONARCH VISUAL.

In the visual signal just placed upon the market by the Monarch Telephone Manufacturing Company of Chicago are noticed several characteristics which will immediately associate this signal with other Monarch equipment. Outside of substantial, simple construction there is no other feature so apparent as "accessibility." The coil of this visual is arranged similarly to the coil of the Monarch drop, as it can be removed from its shell without affecting the adjustment of the armature and without breaking any soldered connections. In the accompanying illustration one of these coils may be seen removed from its shell. On the rear head are mounted the two terminal clips for attaching the line wires, either by means of a screw connection or soldering.

The armature is mounted in front of the coil, so in this feature also the visual is similar to the Monarch magneto drop. The advantages of this method of armature mounting are many, but the two principal ones may be said to be the increased sensitiveness on account of the short shutter hook and the convenient means left for an adjustment which need not be affected by the removal of the coil. The first advantage can be seen and appreciated at a glance, but the second will merit some study, as a very ingenious and

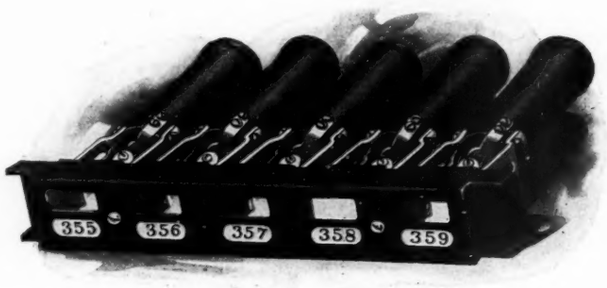


New Monarch Visual Signal.

good idea is here put into practice. A few words of explanation considered in connection with the illustration showing the parts unmounted may make the scheme perfectly clear. Upon examining this cut the armature with the shutter or target attached will be seen. Although not clearly shown, a pin or stud extends from each side of this armature and rests in a slot in the shell of the coil. The slot in each side of the shell may be seen distinctly and the idea will then be grasped. These pins resting in the slots act as pivotal points for the movement of the armature. Under normal conditions the end of the armature is tilted up and the target in front of the mounting plate is down but upon the coil being energized the armature is attracted to the core, thus pulling it down and throwing the target up. The target is made of aluminum, and it so nearly balances the weight of the armature that a very small amount of current passing through the coil will operate the signal.

The adjustment as concerns the armature is fixed permanently and, in order to positively insure an exactly uniform distance between the core of the coil and the armature, a pin, supported by a yoke fastened to the shell, passes into a hole drilled in the end of the core. Therefore this pin becomes part of the core and its position being fixed a slight variation in the ength or position of the coil does not affect the efficiency of the signal. This pin and yoke may be seen in one of the illustrations.

The target is fitted with two small clasps under which



New Monarch Visual Signal.

is inserted a number cord for convenience in distinguishing the line calling. The shield plate placed in front of the mounting has two openings in front of the target, one in the upper portion and one in the lower. These openings are covered with a glass plate and behind the lower one is placed a number card bearing the number of that particular line. This card covers the opening so that the target cannot be seen. The upper opening has no covering other than the glass so the target shows when operated. The mounting strip and the shield plate being finished dead black and the number plates being pure white with black numbers make the targets and numbers easily distinguishable.

The signals are mounted five per strip on one and three-sixteenths inch centers. The mounting strips are six and three-quarters inches long and one inch wide. The construction throughout is most simple and substantial.

The Monarch company is now preparing a booklet fully describing this signal and will be pleased to send it to those interested in this class of apparatus. This signal is designed for common battery work and will make a good simple and low priced equipment for private branch exchanges as well as small common battery plants.

THE IMPROVED EVERSTICK ANCHOR.

During the past year a number of improvements have been made in the Everstick anchor, manufactured and sold by the Everstick Anchor Company, 17 South Maine street, St. Louis, Missouri.

It is claimed that this device is practically the only one upon the market which expands into solid and undisturbed earth at the very bottom of the hole, precluding any movement either backward or forward. In other words, it is claimed that the Everstick anchors are set positively solid, and no vacuum under them to hold water. The Everstick anchor is made of malleable iron, with no danger of breakage, and is coated with asphaltum to prevent rust and decay.

It is further claimed for it that it is the quickest anchor in point of installation and practically everlasting, as well as the most efficient anchor upon the market. The manufacturers offer to refund all money paid for Everstick anchors which do not give thorough satisfaction.

TRADE NOTES.

RABER & WATSON, Chicago, who sell good telephone poles, also believe in good advertising. One of their latest stunts is a "Mule Barometer," which will be sent free upon application.

THE STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY, Rochester, N. Y., is sending out a neat and attractive line of printed matter, descriptive of its receiver cords, switchboard cords, telephone cords, flux solder, wool cable, etc.

THE D. & T. ANCHOR COMPANY, La Crosse, Wis., has prepared some interesting information upon various types of anchors, explaining the construction which gives them good holding power owing to the fact that they grip the solid ground.

THE STERLING ELECTRIC COMPANY, Lafayette, Ind., has recently issued a neat card, showing the proper way to use the telephone in contradistinction from the wrong way, employing two half-tone photographs from life by way of illustrations. Write for one of them.

MR. H. C. SLEMIN, formerly of the engineering and sales departments of the Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., has become advertising manager of the concern in place of Mr. J. O. Oliver, who shifts over to the sales organization..

FORT WAYNE ELECTRICAL WORKS, Fort Wayne, Ind., has a booklet, "Summer Comforts," for distribution. It illustrates and describes telephone booth fan motors, which are a delightful innovation appreciated by every user of public booth pay station, and help get the nickels and dimes.

THE COMMERCIAL ELECTRICAL SUPPLY COMPANY, St. Louis, invites all buyers of telephone supplies to read its monthly price list, descriptive of stock on hand at its St. Louis establishment. This price list comes in a very convenient form and is desirable for telephone men to have on hand.

THE JULIUS ANDRAE & SONS COMPANY, Milwaukee, is sending to the trade a very neat and useful folder descriptive of its line of telephone goods. This is one of the very best things in concise form which has recently come to our notice, and is well worthy of a place on every manager's desk.

THE COMMERCIAL ELECTRIC SUPPLY COMPANY, of St. Louis, Mo., informs its customers that electrical porcelain is likely to undergo a sharp advance in the near future and advises that they secure immediate quotations on all supplies of this kind, which they are likely to be in need of this season.

THE DIELECTRIC MANUFACTURING COMPANY, St. Louis, has issued a new bulletin, descriptive of its impregnating and cable compounds, which enjoy quite extensive use throughout the telephone field. Copies of the bulletin and condensed data sheet No. 2 will be mailed, gratis, to interested parties.

THE C. H. WORCESTER COMPANY, Chicago, producers of cedar poles, ties, etc., owing to its constantly increasing business, has found it necessary to move into larger quarters. The company remains in the Tribune building, but the offices are now located on the seventeenth floor, in rooms 1708, 1710 and 1712, instead of room 1208, as heretofore.

THE FIRM of McGillivray & Pepiot have issued a neat folder entitled "A Talk on Telephones" by J. E. McGillivray. This folder not only gives some very appropriate advice to prospective buyers, but contains general information of an interesting character.

THE NAUGLE POLE & TIE COMPANY, 226 La Salle street, Chicago has recently issued a very convenient booklet containing standard specifications of white cedar poles. An order blank in the form of a post card is also attached to and made a part of the folder. Parties in the market for poles are invited to ask for this folder if they have not already received one.

THE STEEL GAIN MANUFACTURING COMPANY of 7 South Clinton street, Chicago, finds that its "Bull Dog" steel gain meets with much favor among users of poles and cross-arms. This device is a steel cross-arm support which makes braces unnecessary on five-foot or six-foot arms, saves the expense of cutting a gain and strengthens the pole instead of weakening it.

THE CALCULAGRAPH COMPANY, of 13 Maiden Lane, New York, has issued a new folder, descriptive of its device for mechanically recording elapsed time. The Calculagraph is already employed by many of the leading telephone companies for keeping records of their toll messages. Many of our readers will doubtless be interested in securing the Calculagraph Company's new literature on the subject. It relates to cost accounting more particularly.

THE AMERICAN ELECTRIC FUSE COMPANY, Muskegon, was awarded the contract for the entire cable terminal protector equipment to be used by the Home Telephone Company, Detroit, Michigan, in connection with its new exchange now building. The American type "J" terminal met all the specifications of the engineers and will be used exclusively at Detroit. Contract amounts to about fifteen thousand dollars and is probably the largest single order ever placed for cable terminal equipment in the Independent field.

THE UNITED STATES COIN REGISTER COMPANY, Toledo, O.. is prepared to send out some very interesting information about the United States combined cash register and pay station. This pay station is furnished with a tape upon which a record of the amount of every deposit is made automatically. This tape is automatically cut off and deposited in the cash drawer when collection is made. It furnishes a record which enables the accounting department to have an absolute check upon all collections, and avoid errors and disputes. The company will send full information upon receipt of a request.

THE SWEDISH-AMERICAN TELEPHONE COMPANY was one of the leading exhibitors at the Iowa state convention, held in Sioux City, March 19, 20 and 21. The company's headquarters were in room 102, Garrettson Hotel. A large number of orders were secured by the company, shipments being made from its Sioux Falls, South Dakota branch. The fact that western and northwestern Independents can have their telephones and supplies delivered from Sioux Falls is meeting with general favor. The Swedish-Ameri-

can is the only Independent telephone company making shipments from that point.

"SECURITY" CABLE TROLLEYS, made by the F. Bissell Company, Toledo, Ohio, can again be shipped on demand. For a time the deliveries were behind, not because of insufficient factory capacity but through delay in getting iron. The F. Bissell Company has prepared for an extra big year with extra big stock and will keep up with the trade, but will appreciate the courtesy of orders ahead of their customers' actual necessities as this certainly insures their convenience.

THE HALLETT IRON WORKS, 92-96 W. Polk street, Chicago, Ill., is making large sales of its standard materials for outside construction. Cable reel jacks and bars, alley arm braces and other classes of iron work used in telephone construction which this company sells have become thoroughly established in the market and won a high reputation for quality. A complete list of the company's products with any desired information will be sent to telephone managers upon request.

THE NORTON-SYSTEM TELEPHONE COMPANY, Toronto, Canada, has just published in its Bulletin No. 5 a description of some of the interior systems which it recommends. This bulletin shows the circuits for such systems and also apparatus, including telephones, switches, annunciators, etc., which are needed in constructing them. The company will be pleased to send this bulletin or any information concerning the several classes of telephone apparatus in which it deals to all interested persons.

A. LEON MEDEARIS, who is connected with the Southwestern Telegraph & Telephone Company at Jonesboro, Ark., has composed and published a very catchy song, entitled "She is Only a Telephone Girl." Copies of this new piece can be had of the publisher upon receipt of 50 cents, but all telephone operators mentioning TELEPHONY can have same for half price—25 cents. Mr. MeDearis is the well known composer of two other very popular songs, entitled "My Darling Little Sweetheart," and "In Old Arkansas."

THE W. G. NAGEL ELECTRIC COMPANY, Toledo, O., in its journal, the Electrical Times, prints the usual current price summary, which gives latest prices upon construction material, wires, batteries, etc. This feature of the paper is especially interesting to all telephone managers and superintendents of construction, as it enables them to keep close track of the market and secure accuracy in all estimates. An interesting article also shows the danger of stringing telephone wires on the same poles with those bearing currents at a high voltage.

JOHN J. REIDY, manufacturer of the well known Reidy climber for linemen, has recently secured larger quarters for the manufacture of this device and various other specialties, such as straps, belts, pads, etc., used by linemen. Mr. Reidy is now located at Mill street and Saltonstall avenue, New Haven, Connecticut. In his new location he will have larger and better facilities and will be able to give the best of attention to his largely increased trade. Mr. Reidy will be glad to hear from all parties interested in the line of goods which he makes.

THE BELDEN MANUFACTURING COMPANY, 194 Michigan street, Chicago, Ill., has recently purchased a building comprising five stories and basement adjoining its present factory. The new building has been altered in such a way as to form an addition to the present manufacturing floor space of about fifty per cent. This increase has been made necessary by the demands in all departments of the company's business, which includes the manufacture of copper and German silver for various purposes, in addition to the well known Belden specialties for telephone companies.

THE MACEY COMPANY, of Grand Rapids, Michigan, is engaged in the publishing of card forms for telephone companies, which desire to keep their systems by this method. A number of set forms which have been published for various telephone companies will be mailed as samples to those companies contemplating a system of this kind. The Macey Company also will prepare original copy from suggestions furnished. It is claimed that the card system is the ideal method for keeping records of subscribers, accounts, etc., and is the most economical as well as the most flexible system which can be employed.

THE DAYTON MANUFACTURING COMPANY of Dayton, O., has recently issued a very convenient and comprehensive catalogue, No. 139, descriptive of the Silvey storage batteries, which are manufactured by this concern. The Dayton Manufacturing Company has been manufacturing storage batteries for the last sixteen years and claims that its now "armored type" of battery has so many self-evident points of merit as to make it a seller at sight. A number of special types of storage batteries especially designed for telephone purposes will be found described in the new catalogue. It can be had upon application.

THE AMERICAN CONDUIT COMPANY, Chicago, San Francisco and New York, has just issued a leaflet which gives some interesting information concerning concrete. It shows the amount of material required for a cubic yard of concrete made with different proportions of sand, loose gravel and cement. This table should be very useful to those who have occasion to compute volumes of this material, and as its use in connection with buildings, underground work, and other structures owned by telephone companies is rapidly increasing, it should have a practical value to many telephone men. A copy will be sent on receipt of a request.

MR. F. L. MCGILLEN, who has for some years been connected with the Valentine-Clark Company, Chicago, has resigned, to take effect April 1, and will then become associated with the California Pole & Piling Company, 507 Market street, San Francisco, Cal. Mr. McGillen will have charge of the department devoted to cross-arms, poles and piling. It is expected that the concern will open yards at Omaha and St. Louis in the near future. The California Pole & Piling Company is a branch of the Weyerheuser interests, and also is closely connected with the Charles R. McCormick Company, San Francisco and McCormick, Wash.

THE RAPID GROWTH of the business of the Oliver Manufacturing Company, of Philadelphia, makers and jobbers of electrical apparatus, has necessitated its securing larger quarters, and the company will, on April 1, occupy commodious offices and salesrooms at 1020 Walnut street, where it will show a most complete line of interior telephone systems, annunciators, watchmen's clocks, electric lighting fixtures, etc. Among the specialties which this company is placing on the market are the "Flexiphone" (flexible telephone), the "Flexilite" (an automatically adjusted electric light), and the "Equipoise" telephone arms, which are so widely and favorably known.

THE BLAKE SIGNAL & MANUFACTURING COMPANY, 246 Summit street, Boston, Mass., has in the "Blake tube flux," which under its new name has been recently put upon the market in an improved form, an especially interesting product. The flux is put up in a collapsible tube with a long aluminum spout. By manipulation of the tube

just the proper quantity of paste can be applied to the work during the process of soldering, and the spout enables it to be placed just where it is needed. Owing to the fact that this spout is made of aluminum it can be placed directly in hot solder without becoming clogged. Full information will be furnished by the company on receipt of a request.

THE ROLFE ELECTRIC COMPANY of Rochester, N. Y., is shipping hundreds of its new type porcelain fuse boxes daily. In New York alone over 25,000 of these boxes have been installed since January 1, 1907. The company states that a solid line taking in nearly every exchange from Buffalo to Albany, shows Rolfe goods at nearly every telephone, which speaks well for this company to have many of the telephone companies in its own state using its goods, as well as the larger companies throughout the country. A large number of inquiries are received each day regarding this fuse box, and are always cheerfully answered. Should any information be desired a request addressed to the Rolfe Electric Company, Rochester, N. Y., will bring full details.

THE HALCOMB TELEPHONE SUPPLY COMPANY has recently removed to new quarters at 123 West Sixth street, Kansas City, Missouri, where it will enjoy better accommodations and finer facilities than ever before for supplying the telephone field with new and rebuilt apparatus. This firm's advertisement will be found in the advertising section of TELEPHONY. The Halcomb Telephone Supply Company makes a specialty of buying standard but slightly used apparatus and rebuilding same in such a manner as to make it practically as good as new. The firm claims to make careful selection of the apparatus which it purchases, employs skilled help in the overhauling process and gives all of its goods a careful test before shipping. It is conveniently located as regards a large and active field.

THE INTERSTATE SUPPLY COMPANY, of Sioux City, Iowa, is now developing a complete line of telephone apparatus under the supervision of Mr. R. Hanson, who has been associated with some of the oldest and largest telephone manufacturing concerns of the country. It is expected that this line will be completed and ready to offer to the trade within the next sixty or ninety days. The Interstate Supply Company, on account of its favorable location, as regards large and rapidly developing territory, has apparently a most favorable outlook and under the popular and efficient management of Messrs. McGraw and Brown should achieve further and greater success as a manufacturer of telephone apparatus. Parties interested in further details about their new factory and line of apparatus are invited to correspond with them direct.

THE AUTOMATIC ELECTRIC COMPANY of Chicago, announces the closing of a contract for 10,000 additional lines of automatic telephone equipment for the Home Telephone & Telegraph Company of Los Angeles, Cal. This is for immediate installation in the new Olive exchange, and the completion of this exchange will practically mean the elimination of the manual equipment now in use in the present main exchange. Other contracts placed with the Automatic Electric Company during the first two months of 1907 are: Home Telephone & Telegraph Company, Portland, Ore., 3.000 additional; Montana Independent Telephone Company, Butte, Mont., 2,000 lines; Home Telephone & Telegraph Company, Tacoma, Wash., 1,000 additional; Rushville Co-Operative Telephone Company, Rushville, Ind., 800 lines, and several additions to present automatic exchanges.

THE ROCK ISLAND BATTERY.

"Quality, not price" is the thought which the Rock Island Dry Battery Company, Cincinnati, is hammering into the users of dry cells. The trademark, "R. I. Bat.," is internationally known, for these Cincinnati hand-made batteries are being shipped to all quarters of the world. Finland, Sweden, Scotland, South Africa and the Philippines were represented in a recent consignment to foreign lands.

Mr. M. A. Loeb, of the company, is reported to have recently closed important contracts with some of the largest concerns in New York, Boston and Philadelphia, and large concerns, as is well known, generally demand the best. The Rock Island battery has won such fame and success as rests upon a foundation of solid worth. Rock Island cells are especially noted for their claims to long life. They are made by hand, it is said, from the highest grade of carbon wrapped in chemically prepared cloth and set in a wall of chemical. The moisture is held captive by this treatment so that neither heat nor cold is said to affect the battery. The Rock Island is the only battery, it is claimed, that will not deteriorate on salt-water craft. These batteries have also made good, it is said, on the claim of little internal resistance, more constant tension and wonderful recuperative power.

In the course of their construction they are subjected to five tests and actual demonstration is said to have shown that they are superior to any other battery. Many of the Bell and Independent telephone companies have put the Rock Island battery to the test and have found, it is said, that they do not crystallize and are not affected by heat or cold.

The Rock Island Battery Company offers to fill orders within forty-eight hours after receipt and all batteries shipped are guaranteed never to be over forty-eight hours old. They are made in three sizes. No. 6 is very extensively used for telephone purposes, door-bell work, electrical clocks, automobile ignition and nearly all other purposes. No. 7 and No. 8 are the best for gas and gasoline engine ignition, and as No. 8 will outlast four sets of No. 6, it is decidedly the cheapest battery of the three sizes, although its original cost is somewhat greater than that of No. 6. Rock Island cells were first made at Rock Island, Illinois, but they are now made in a spacious, up-to-date factory at Ninth and Sycamore streets, Cincinnati, Ohio.

DELAWARE HARD FIBRE.

The Delaware Hard Fibre Company, of Wilmington, Delaware, has recently increased its capacity by erecting another large mill, and is now prepared to fill more promptly all orders for hard fibre in sheet, rod or tube form. It is claimed for the hard fibre made by this concern that it is not only thoroughly insulated but extremely durable and will not easily disintegrate. The making of hard fibre properly is a process which requires long experience, exceptional care and large capital. For any one of the above reasons there have been few concerns which have attained great success in this particular field, and the Delaware Hard Fibre Company is justly entitled to front rank in this respect. Much of the credit for this is due to the company's popular president and manager, Mr. Frank Rupert, who is well known throughout the telephone fraternity. This concern is ably represented in Chicago and the west by Albert J. Cox & Company, of 921 Chicago Stock Exchange building. Many readers who have never given the manufacture of hard fibre much thought heretofore will probably be interested in the following description of its origin and development:

Hard fibre is made from specially prepared vegetable fibres, by subjecting them to the action of powerful chemicals and a vulcanizing process which, together with heavy rolling and pressing, completely changes the nature of the fibres, making of them a material different in many re-

spects from any other known substance. In structure, hard fibre closely resembles horn. It possesses the strength and density of a metal and yet is elastic and nearly as light as hard wood.

It is insoluble in any of the ordinary solvents and is unaffected by contact with the animal, vegetable or mineral oils. When immersed for some time in water it will absorb it and swell, but is in no way injured. Upon drying it resumes its former size and density. When heated it does not melt or become soft, but at a high temperature chars and loses its elasticity.

An important property of hard fibre is that when pure and dry it is an excellent insulator of electricity. This fact, in connection with its physical properties adapts it for many uses in electrical construction.

Fibre may be sawed, worked in a lathe or planer, riveted, punched, drilled, and tapped, and will take a fine polish. It is not brittle, but on the contrary very tough, and will stand any amount of pounding and rough usage. A noteworthy feature of the material is that it improves with age. For electrical work fibre that has been cured for six months or a year gives the best results. The Delaware Hard Fibre Company carries in its factory a stock of about 100 tons from six months to two years old.

A UNIQUE LETTER.

One of TELEPHONY'S readers has sent in a letter received by him from the Western Telephone Manufacturing Company, of Chicago, with the request that it be published as a unique contribution to telephone advertising. The letter follows:

You have read a great deal lately of the "strenuous life." That's what the telephone manufacturing business is. This letter is about the other side of the story. It relates to the "simple life." The real title should be, "Simplicity," or "We Give You The Least For Your Money."

Nowadays many telephone manufacturers claim to give you the most for your money. We do not make any such claim when we sell you a Western "Economist" telephone. We give you less for your money than anyone else would give you in a telephone. We give you less complicated parts, less useless wiring, less weight, less size, less freight to pay, less packing box and less trouble than you would get if you bought any other kind of telephone. We sell Western "Economist" telephones by quality, not by weight.

Yours for simplicity,
Western Telephone Manufacturing Company,
G. Hallett Johnson,
General Manager.

AN ELECTROPLATER'S VOLTMETER.

Weston Electrical Instrument Company, Waverly Park, New Jersey, in its new Bulletin No. 7 gives a very interesting description of its new electroplater's voltmeter, model 131. This instrument obviates the necessity of having an instrument for each tank and enables the plater to avail himself of an extremely accurate and reliable instrument at a very low cost. One instrument will accommodate fourteen tanks. Any lesser number of tanks may be connected in circuit, however. Interested parties should write the Weston Electrical Instrument Company, Waverly Park, New Jersey, for this bulletin.

A SECRET CALLING DEVICE.

Willix & Young, of Mt. Vernon, Iowa, announce a secret calling device which can be attached to any telephone and when a subscriber calls central no other subscriber will know it. In this way, it is claimed, an operator can handle as many rural lines as she can individual drops, simply because the drop never falls unless central is wanted. This is no push button device. Turning the generator in the usual way rings all the bells on the line but does not throw the drop. Turning the generator backwards throws the drop but does not ring the bells. The manufacturers announce that if one puts this device on according to the printed directions and it does not work perfectly they will refund double the amount charged for it. The device works on both metallic and grounded lines, though a relay is needed for each grounded line.

IT PAYS TO ADVERTISE.

In the March issue of TELEPONY appeared an article in which the Western Telephone Manufacturing Company of Chicago compared its switchboards with good watches. The Western company reports to TELEPHONY a very large number of inquiries for switchboard information and prices, resulting from this article, and says that during the month of March four switchboard orders were closed, which were directly traceable to the March TELEPHONY write-up. The business of the Western Telephone Manufacturing Company, both in switchboards and telephones, has been growing rapidly and the present volume of sales is reported as the largest in its entire history.

THE BIGLEY TELEPHONE COMPANY'S NEW BARGAIN LIST.

The Bigley Telephone Company, of 56-58 West Van Buren street, Chicago, has issued a new list, Bulletin No. 2, descriptive of its line of telephone switchboards and supplies of all standard makes. This concern makes a specialty of its department for repairing, and offers to the trade a select lot of very fine, new and rebuilt apparatus and parts. In purchasing apparatus, the Bigley Telephone Company claims to exercise great care in acquiring only standard and modern makes and such as can be rebuilt and restored to their original condition. Each and every part is thoroughly overhauled and found to be practically as good as new before being offered for sale.

This firm will be glad to send Bulletin No. 3 to all interested parties upon request.

SAGINAW VALLEY TELEPHONE COMPANY.

The Saginaw Valley Telephone Company, of Saginaw, Michigan, until recently has been burdened with its franchises. Through the efforts of Mr. C. O. Trask in February last, after a campaign of several months, by unanimous vote of its council the city of Saginaw granted the company a new franchise with a sliding scale of rates, fair both to the public and the company alike. On March 21 Mr. Trask and his associates paid $25,000 to the company as a first installment of $100,000 cash subscribed for treasury stock, the same to be used to rebuild and enlarge the Saginaw exchange.

The following is the present board of directors, the first five being former members while the other four were elected at the last meeting, March 21:

E. T. Carrington, Bay City; C. B. Curtis, Saginaw; J. L. Jackson, Saginaw; F. T. Brand, Saginaw; C. W. Liken, Seebewa; W. B. Woodbury, Detroit; James P. Gibbs, Ithaca; R. B. McPherson, Howell; E. P. Woldron, Saginaw.

The officers elected were as follows: E. T. Carrington, president, Bay City; John L. Jackson, vice-president, Saginaw; C. B. Curtis, treasurer, Bay City; H. A. Price, general manager, Bay City.

The outlook of this company is most gratifying, and during the present year much will be accomplished for the company and the Independent movement of which it is the exponent in the Saginaw valley.

VIRGINIA TELEPHONE CONVENTION.

At a meeting of the executive committee of the Virginia State Independent Telephone Association, held in Murphy's Hotel, Richmond, March 19, there were admitted into the association four new members. The next annual meeting will be held at Norfolk, Va., May 21, 1907. This will be after the opening of the Jamestown Exposition, and it is expected that many will be present.

POLE MATERIAL

Comparison and Discussion of the Preservative Qualities of the Various Woods

By Harry S. Stout

HAVE you ever during your busy rushing days—which means every day of a business man's life—paused to think of the number of minds that have been put to work to make the electric railway, telephone, and telegraph services what they are at this time? Every man, from the man who uses pick, shovel and tamper, to the highest official of each company, including the highest mechanical and civil engineers, has had a part in the work.

Now, in the electric railways the tracks, switches, rails, bonds, curves and everything are correct, and accidents from a car leaving the track are practically unheard of. With cars, not only are they handsome but mechanically perfect, affording luxury for the passenger and comfort for the employe. Insulation has been studied until now nearly all insulating systems are good except probably a few that are not standard.

Telephone and telegraph companies also have made many improvements and inventions in their lines, especially in the building of the lines and putting them up taut and well guyed and braced. If a purchasing agent is going to buy cars, wire insulators or any suspension devices or, in fact, most anything connected with his lines, does he accept or purchase them altogether on their general appearance? I believe he would appreciate a nice design of body and high finish and polish of paint and wood in a car, but his attention would not dwell on these particular things very long, for he would immediately go into the mechanical end of the car—motors, trucks, wheels, brakes and gears. He would ask, how are they constructed, What sort of material in them? How long will they last? What is the life of them and cost of maintenance? Afterward, he would say, "Paint them a certain color, and finish seats and woodwork inside so and so."

And so it is with all material used in electric railway, telephone or telegraph construction except poles. I do not believe there is another commodity entering into the construction of lines that has had so little investigation as the pole, which is a very important part of the construction. Purchasers in buying poles differ very materially from those buying a car. It seems they are eager to pick out of the accepted woods the one to adorn their lines. Beauty seems to be the aim in this particular commodity, while in all others without exception strength and durability are chiefly considered.

There are only a few woods accepted for this purpose—cedar, both northern and western, cypress and chestnut.

We all know there is a reason for accepting these woods. What is it? Our forefathers say they lasted longer in the ground than other woods, which explanation has been accepted. The reason these woods last longer than others is because they contain more tannin, the preservative of all vegetation.

The next question in this line is, which of the woods contains the most preservative or tannin, and which contains it in the most insoluble state, or, in other words, which carries most tannin, and carries it protected against moisture, which is its solvent? The next question is, which contains the most strength for tensions when new and which when partly rotted off?

It would be unbecoming for me to say very much against cedar, as it has been tried and tested and found good, but in a great many localities it has this reputation because other goods have not been used. The chestnut is a wood that grows practically all over the eastern United States, but its home is especially in the Appalachian chain of mountains in the southeast. This wood has not had the opportunities to be tested that cedar has had, and it might be also well to say here that the farther south the chestnut is cut the larger is the percentage of tannin or preservative in it, and the tougher is the protecting ring or fiber against moisture reaching it.

A great many railroad, telephone and telegraph companies would immediately say, "If we knew that chestnut was even as good as cedar, and with it having a lower price, we would be very well satisfied to use it."

Now, taking into consideration that the northern cedar is becoming scarcer every year and necessarily higher in price, it is necessary for the purchasers of poles to look for other woods to take its place.

The statement that tannin preserves the wood can be substantiated from any chemical source, and if this is the case, much depends on the fiber or ring growth in the wood, which governs its toughness and maximum resistance to moisture. All trees are made up of annual growths or rings, as is seen by looking on the end of a piece of timber. The tannin cells are all between these layers, and being directly exposed to moisture are comparatively easily dissolved.

Now, the layer or growth in the chestnut, or what might be called a covering to the tannin cells, is far tougher than the layer of any other wood carrying the same amount of preservative or tannin, and will absorb less moisture than any other wood of its class. This being the case it is reasonable to believe that the life of this piece of timber must necessarily be longer than that of the other. Another advantage that the chestnut has in its tough growth is its resistance to vibration.

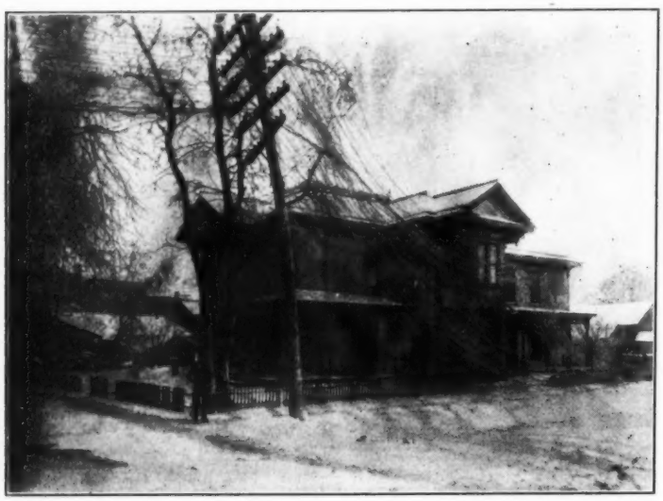
Telephone and telegraph lines vibrate from the wind, and it takes very little wind, if steady, to cause a vibration so that in this it will also be seen that the chestnut contains in its tough fiber a larger resistance than any other wood used for the purpose. A chestnut pole when new will stand twenty-three to twenty-five per cent more tension than any other timber used for poles—that is, it takes that much more to protect it and when poles are rotted at the base, as is the case with all of them, the chestnut when rotted down to six or seven inches in diameter will stand at least one hundred per cent more.

No doubt a great many companies have sustained losses in pole lines on account of the pole being burned off at the ground, especially at a point where lines are parallel to steam railroads, which are continually setting fire to the dry grass along the track. Chestnut resists fire a great deal more than any other material that is used for poles. Cypress is also being used in some places on account of its straightness, and so are the western or Idaho cedar, but it will be easily ascertained that neither of these woods compares with the others for life or strength.

An objection at times is used against chestnut by buyers, that it is not quite as straight as the other woods, but it is possible to set a very pretty line out of chestnut poles, as the writer has seen good lines that were set of what he would term very crooked poles by ordinary exercise of care and judgment.

EFFECT OF THE SLEET AND SNOW AT ALBIA.

In the description of the Albia (Iowa) Telephone Company which appeared in the March TELEPHONY, an illustration was published showing the havoc wrought by sleet



Showing Effect of Sleet and Snow at Albia, Iowa.

and snow. The accompanying illustrations give two very good views of the company's lines during the terrific sleet and snow storm which visited Albia in January, 1904, and which put the telephone service out of commission. These

Showing Effect of Sleet and Snow at Albia, Iowa.

photographs were furnished TELEPHONY through the courtesy of Mr. Grant M. Heiserman, president and general manager of the Albia Telephone Company.

PROGRESS IN WISCONSIN.

O. A. Rice, manager of the Interurban Telephone Co., writes as follows of the growth of the Independent movement in Wisconsin:

"In response to many inquiries in reference to the sale of the Wolf River Telephone property at Oshkosh as published in several of our county papers, I would say that this sale had nothing to do with the Interurban Telephone Company, commonly called the Wolf River Company, which has been in business since the Independent movement first started, and has been the means of giving New London the low rate of $1.00 per month.

"During the last year there has been a wonderful awakening of public interest in the Independent movement. Independent companies have extended their service in all directions, successfully competing with established monopoly in opening new exchanges, and developing thousands of miles of new territory with rural service and toll lines; the new companies compelling the old to give better service and reasonable rates.

"Never before in a single year have so many franchises for important cities been granted the Independents. The people of these cities have recognized the value of competition and decided in some cases by a popular vote to no longer submit to monopoly.

"Everywhere the people are beginning to appreciate the benefit of the greatest modern convenience, the telephone, and to realize that the Independent companies are entitled to their thanks and support for having placed it within their reach.

"With the opening of Milwaukee to the Independent interests of the state, new impetus will be given to the movement generally, and many cities and towns in the state which now do not possess Independent plants will build in the near future. A company has been organized, not alone to build Milwaukee, but a long-distance company, which purposes to build trunk toll lines throughout the state, connecting with other Independent properties and with Milwaukee."

CONCERNING THE MANAGER.

As a usual thing the "Hello" girl is given more publicity than all others connected with the telephone business, and the exchange manager, comparatively, receives no public attention at all. It is rather refreshing, therefore, to turn to a paper read by Vice-President Wm. J. Robinson of the Michigan Independent Telephone Association at the recent meeting at Jackson. The manager—who is he? What is he expected to do? What does he have to contend with? These are some of the questions answered by Mr. Robinson, who is manager of the Citizens' Telephone Company at Muskegon, Michigan.

"The manager," said Mr. Robinson, "is generally some good, bright, upright, honest young man that his company has had with them for some time, and who took a great interest in his work and labored faithfully for the interest of his employers—working for their interests without any thought perhaps of any prospects of immediate promotion and unaware that he was serving an apprenticeship for the position of manager.

"But he was being watched and an opportunity came for him to be promoted and his company concluded that he was the one they wanted out at Stumpy Corners to look after their interests there, build up their business, increase the revenue and improve the service. So he is promoted from his former job and is placed in charge at Stumpy Corners.

"There he is, away from his friends and associates—all alone, you might say—with none of his superiors at hand to confide with or give their advice and counsel how to handle contingencies that may arise, of importance to him at least. No one with whom to converse upon the subject of the most interest to him—Independent telephony—except, perhaps, his friend the Bell man; and how does he keep himself posted on what Independent telephony is doing?

"Does his general manager call him up and post him on what is taking place in the telephone world? Does the general manager write him a nice personal letter and post him on what his friend down at Six Corners is doing to get 'farmer contracts,' and say to him, 'Hustle up a little, old man, and perhaps your exchange will outnumber Six Corners'? No. But the young man hustles just the same, improves the service, gets the contracts, and puts in the telephones.

"And the first thing he knows his capable capacity is exhausted, his switchboard is full, his farmer lines are overloaded. What shall he do? He makes up his mind that the company will do its part and furnish what is necessary

to continue the good work. So he communicates with the general manager, or the superintendent of construction, or the superintendent of equipment, and lays the matter before them—proud of his achievements.

"How is he complimented upon his achievements? Generally in this manner: 'What are you trying to do? What do you think this company is?—a gold mine? Get along the best you can. We can't spend all of our money up there. Hustle up and get your collections in better shape so we will have plenty of money to pay the next dividend with and don't ask us for any more in the way of investment.'"

Mr. Robinson argued that right here is where the meetings of telephone men are valuable, as they give the managers an opportunity to exchange ideas, and by means of discussion and advice learn how to wrestle successfully with the problems that often arise to vex and annoy them.

"How is he going to hustle up his collections?" continued the speaker. "Can he get 'blood out of a turnip'? No, he thinks he can't, but he may have the pleasure of attending these meetings and ask questions of those who can get 'blood out of a turnip,' and they will tell him how it is done.

"And his friend from Six Corners, who was shooting trouble at the same time he was and who could not make a telephone talk when he had both zincs of the batteries connected and was helped out by him, can tell how he handled this man or that man and got him to pay his rental in advance instead of arrears, and his toll bills on presentation.

"He can meet Jones of Smith's Corners, who is with that other company that insists on checking a higher rate than the rate he has quoted, and there is Brown from the other way, who insists upon checking up every minute or a fraction of a minute on all incoming calls, and White, who sends reverse calls to your office without informing your operator that they are reverse calls, and tell each other the error of their ways, and perhaps they will try and be more careful and possibly some of these errors we all like so well will be obviated.

"Then there are other topics that will be brought up and discussed, and he will hear from both sides. He will hear how this one or that one did this or that and got those fellows out there to pay a higher rate for something they thought they would get but didn't. He will perhaps hear what is the proper way to protect his lines and instruments against lightning. He will hear how to cut a copper toll line for the purpose of making a test to locate trouble and put it back in its original condition without making a joint.

"He will hear, perhaps, how other people build rural lines and what they think is the proper way to operate and conduct them so that the rural subscriber is satisfied and thinks he is getting the worth of his money, and how he can get his subscribers to use the toll lines more; and the value of discipline—how much and how little is for the best of all; and the conduct and personal appearance of employes—compare your opinion with those of others.

"What good will this association do you? It will do you a great deal of good if you come with the determination to get good out of it and enter into the discussions and let us hear from you.

"Let us all strive to make these meetings a success and see how much may be derived from them to promote a better harmony among Independent telephone workers that will bring Independent telephony to a higher standard and as near perfection as possible."

UNCLE BILLY'S VIEW OF THE TELEPHONE QUESTION

By Robert Burns Buchanan

By Gosh, I've lived on this 'ere farm nigh onto fifty year;
An' things are somewhat different from when I moved up here.
We cut our hay then with a scythe, our fork—a crotched bough.
But modern farming implements are all the rage just now.
We used to "set" our milk in pans and put 'em on the shelf,
But now it's whirled through a machine and sorter skims itself.
Of course, these things are handy like, as handy as can be,
But can't outdo the telephone, they can't, sir, no siree.
My neighbors call me well to do, and, well, I s'pose they're right.
The reason is, I look ahead—this makes the future light.
Just thirteen year ago I saw if I but had a 'phone
I'd get the highest price for stuff and stay right here at home.
These Bell folks had a line out here, that went right by my gate,
But, Lord, they wouldn't look at me, with clothes not up to date.
I druv down to their office once and found a feller there
Who nudged the operator who was in the "hello" chair.
"Hello, old Rube," he said, says he, "What's doing on the farm?
Look out, or in the village here you'll surely meet some harm."
That talk sorter made me mad; an' you'd be mad, that's right.
I really had a durned good mind to make that smarty fight.
But, 'stead of that I grit my teeth, and stood up mighty straight.
Says I: "I want a telephone. What is your lowest rate?"
The Bell man he began to laugh and double up in glee.
He thought it was a joke, I guess, a laughing there at me.
I just stood waitin' quite a while; at last his spell went by.
He set up then, and blowed his nose, and once more winked his eye.
And then his lips began to move; at last his voice he foun'.
He says: "To have a telephone you'll have to move to town.
We haven't time to bother now with farmers on our line,
Because without the chink to pay, they'd bother all the time.
If you decide you want a 'phone, why not move into town;
And when you're ready let us know, by simply calling round."
"But," I inquired, "If I move here, what rent must I then pay?"
"Oh, thirty dollars for the year." Then I just came away.
As I have said, I came away, but wanting one so bad
That I kept hammering at 'em 'most every chance I had.
But, at the end of two long years, I saw some linemen out
With stakes and hatchets in their hands; it almost made me shout.
But when they got quite near at hand 'twas very plain to see
That their intentions wuz all right, so I just stayed, by Gee!
And to the first one who went by I just said "Howdy do."
But to the boss, who came along, "What be you goin' to do?"
He just looked up at me and smiled as chipper as could be.
"We're staking out a line for Independent 'phones," says he.
And when that line for 'phones was up, I had one put right in.
And though I paid just twelve per year, she worked slick as a pin.
Now that was 'leven year ago; and though the line has grown,
I've always been used square and couldn't lose that telephone.
The Bell folks have been getting scared; a losing 'phones each day.
The people don't go to them now; it's all the other way.
They send out agents all around; to towns both small and great,
To put in 'phones where e're they can and make a special rate.
It's free to you the first three months, and then you have to pay,
Besides there's something extra if you talk five miles away.
Now if they drop this big fat bait right square in front of you,
Don't move up near and draw it in, as suckers often do,
For if you do you'll find yourself a-dangling on their line
While somethin' sharper than a hook is diggin' in your spine.
You'll have to sign a contract sure, to keep their 'phone so long,
And these will sometimes disagree, unless your stomach's strong.
Now, as you know your Uncle Bill's advice you've often sought
Before you started cutting hay you'd ask him what he thought.
Now, as I've told you heretofore, the way I allus do,
And if you care to take it, this advice I'll give to you:
If you want rates to take a jump, far upward to the sky,
Just patronize the Bell and let the Independents die.
You'll find that that'll happen. It's the long and short of it.
Bell rates would jump up quickly, if the Independents quit.
But if you want the rates to be right where they are to-day
Just patronize your own home line and drive Bell men away.

ITEMS FROM THE RURAL LINE DISTRICTS

Illustrated by O. H. Brandenburg

Miss Glydie Copp is working at the Michigan State Telephone Company.—*Holly (Mich.) Advertiser.*

The Fairview Telephone Company held a meeting at Geo. Blue's Monday afternoon.—*Canton (Kan.) Pilot.*

The farmers' telephone line will be completed from Patriot down to Egypt Bottom in the near future.—*Rising Sun (Ind.) Recorder.*

The Golden Mutual Telephone Co. have divided the line and are taking new members on each end of it.—*Flora (Ill.) Journal.*

Harry Manifold is going to have a telephone on the Yates Center line. (Miss Lola Rayborn is in Yates Center.)—*Yates Center (Kan.) Advocate.*

The Messrs. Popp and Umbach of the Home Telephone Company, have gone to Sturgis, Mich., on a business trip.—*Ft. Wayne (Ind.) Journal-Gazette.*

Gust Fergot and Frank Mouldenhauer made a trip to Welcome last Saturday in the interest of the Matteson Telephone Company. —*Howell (Mich.) Herald.*

We have settled on the price with the London Telephone Company and will keep our telephones this season.—*Mt. Carmel Correspondence Russellville (Ark.) Democrat.*

Frank Moldenhauer was to Bear Creek Corners last Friday in regards to the new telephone line which is to be erected next spring from Welcome to Nicholson.—*Clintonville (Wis.) Tribune.*

A new switchboard has been put in at the home of Grandma Dauron on line one and we now have telephone communication with thirty-six towns free of charge.—*Cherokee (Kan.) Sentinel.*

The cold snap is playing havoc with the telephone lines, three and four breaking at once, making the lineman wish for the good old summer time.—*Edelstein Correspondence Princeville (Ill.) Telephone.*

Mr. Tone of Centerville has accepted a position with the Wakonda Telephone Company as lineman. Mr. Tone comes well recommended and will make the company a good man.—*Wakonda (S. Dak.) Monitor.*

T. C. Wilson made a business trip to Green Bay endeavoring to secure better telephone service. Something seems wrong with the wires as they are sadly bent.—*Coleman Correspondence Marinette (Wis.) Eagle-Star.*

The telephone company and Mrs. Boyd have gotten into trouble over the cutting down of a tree on the street in front of her residence. She objects to having it done, as she considers it a shade to her house, protecting the window from the sun.—*Sterling (Ill.) Standard.*

Shawnee, Okla., Jan. 14.—Irritated beyond control when, after repeated attempts had been made to converse over a balky telephone, with "B-r-r-r—Hello-hello! Br-r-r—Hel—B-r-r-r!" as the only response, "Shorty" Hatfield slammed the receiver against the box with violence born of continued agravation—and the instrument went out of business. The aggrieved telephone company complained and Mr. Hatfield paid a $10 fine for cruelty to telephones.—*Oklahoma City (Okla.), Oklahoma.*

Mrs. H. J. Stephenson was repairing the telephone line Monday. —*Spring Ranch Correspondence Hastings (Neb.) Tribune.*

The Big Sandy Telephone and Telegraph Company, who lately took control of the long distance between here and Morehead, have put in splendid telephone cabinets at Morehead, Olive Hill and here. —*Grayson (Ky.) Herald.*

B. Lawrence, the new telephone manager, has moved his family from Hillsboro, and occupies the Jno. Gose residence in the west side of town. Mr. Lawrence has three children in bed with the measles.—*Decatur (Tex.) News.*

The Independent Telephone Company have just put in a new switchboard at the central and put in several instruments lately. They seem to be doing the business here.—*Masardis Correspondence Presque Isle (Me.) Herald.*

Manager Collins of the Silverton Telephone Exchange, came down yesterday and last night joined the Elks. Mrs. Collins came along to nurse him back to life after the Durango stags finished with him.—*Durango (Colo.) Democrat.*

Alfred Buss and Will Roberts put the telephone wire on poles last week. Heretofore it has been on a fence most of the way. The poles were set last fall, but the wire was not raised.—*Bloom Correspondence Worthington (Minn.) Globe.*

Mr. Gorman, Mr. Lindquist, Mr. Silbel, and Mr. Terry, manager of the telephone company, and Mr. Swartz of the East Moline exchange, held a meeting in the city jail Monday evening to talk over the telephone business.—*Moline (Ill.) Journal.*

Miss Maze Kolp has resigned her position as "hello" girl at the local telephone office and Miss Ethel Holes, who has been taking a much-needed rest since last June, has resumed her old place. —*Van Buren Correspondence Marion (Ind.) Courier.*

The directors of the Berea and Slab Telephone Company met at the Mitchell school house Saturday to transact some business. The line will soon be extended to Cairo, being already commenced. —*Smith Run Correspondence Harrisville (W. Va.) Gazette.*

Rolla Taylor, who was knocked off a load of wood by a low telephone wire, sued the Warrensburg Home Telephone Company for $4,000 damages. The company offered him $60, whereupon Rolla didn't let a little difference of $3,940 stand in the way, but settled.—*Clinton (Me.) Democrat.*

Twenty-three farmers in the south part of Lone Tree, southwest of Spring Valley and north part of Mound, have formed a telephone company. They will run their line into Moundridge. They may connect with the Lone Tree line. They hauled their poles last week and they are putting them up this week.—*Galva Correspondence Canton (Kan.) Pilot.*

The Baraboo Telephone Company is considering the advisability of muzzling all the pet squirrels about the city, as the little animals have been causing trouble by gnawing holes through the lead covering of the cable, which allows water to get in, making a short circuit. It's either a muzzle for the squirrel or a tin covering for the cable.—*Baraboo (Wis.) Republic.*